OCTOBER 15, 1952

MODERN MEDICINE

The Journal of Diagnosis and Treatment

Dr. J. Edmund Bradley *(see page 11)*

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Safe, gradual, prolonged vasodilation

Isn't that what you want for your hypertensive patients?

Nitranitol provides it . . . permitting hypertensives to resume more normal lives.

And . . . therapeutic dosages of NITRANITOL can be maintained over long periods of time . . . *without* frequent checkups . . . *without* worry about possible toxic effects.

Nitranitol is the universally prescribed drug in the management of essential hypertension.

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(brand of mannitol hexanitrate)

FOR SAFE, GRADUAL, PROLONGED VASODILATION

1. **When vasodilation alone is indicated**—*NITRANITOL.*
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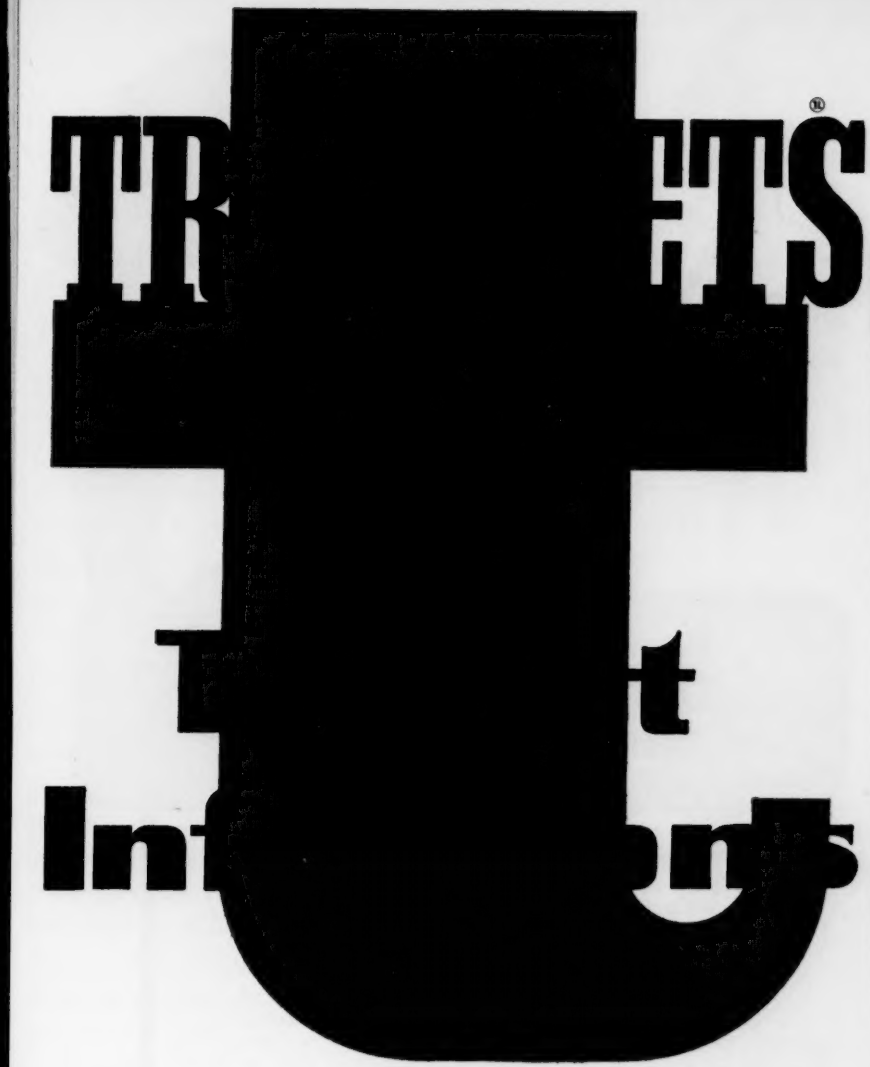
5. **For refractory cases of hypertension**—*NITRANITOL P.V. (Nitranitol, Phenobarbital, Veratrum Alkaloids*)*

*alkavervir



TRACINETS® Troches provide effective topical treatment for mild throat and mouth infections. Containing 50 units of bacitracin and 1 mg. of tyrothricin, these pleasant-tasting troches exert a synergistic antibiotic effect for more rapid and effective clinical control of certain susceptible throat infections. TRACINETS Troches also contain benzocaine to relieve local irritation and discomfort. Supplied on prescription only. Vials of 12.

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effective in 6 out of 7 cases of functional vomiting[1] . . . reduces gastrointestinal smooth muscle contractions physiologically . . . contains no antihistaminics, barbiturates, or other drugs . . . also useful in nausea of pregnancy, and for drug- or anesthetic-induced vomiting

IMPORTANT: **EMETROL** is stabilized at an optimal physiologic pH level. Dilution would upset this careful balance. For this reason, **EMETROL** is always taken straight, and no fluids of any kind are allowed for at least 15 minutes after administration.

1. Bradley, J.E., et al.: J. Pediat. 38:41, 1951; idem: Amer. Acad. Pediat., meeting Oct. 16, 1951.

Supplied:
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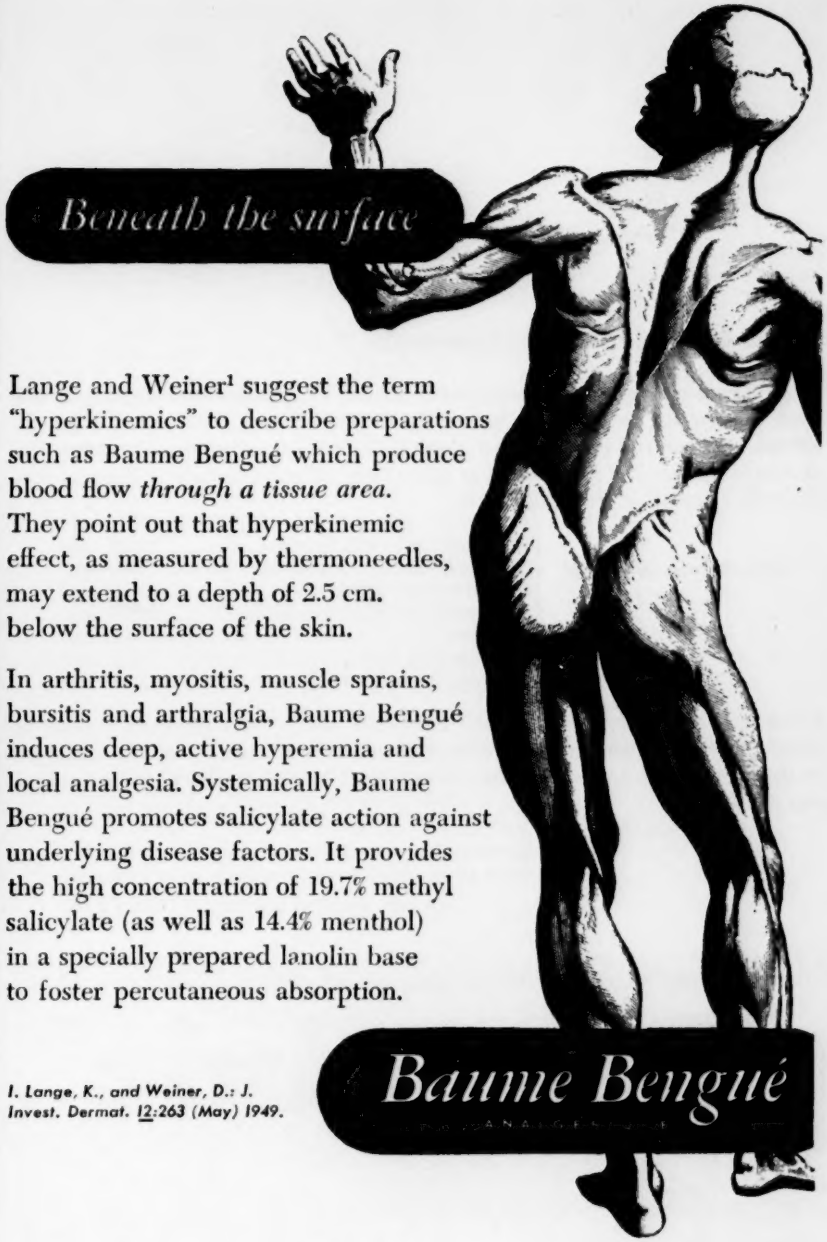


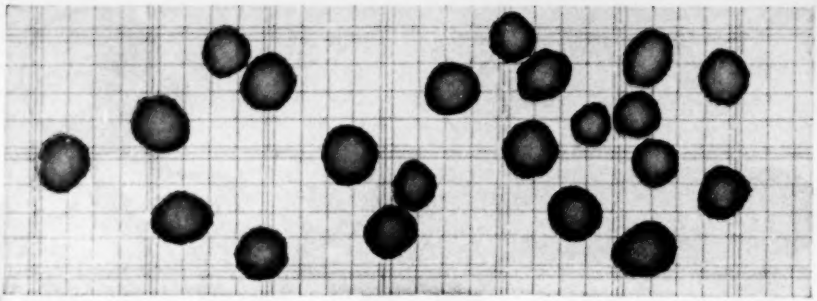
Lange and Weiner[1] suggest the term "hyperkinemics" to describe preparations such as Baume Bengué which produce blood flow *through a tissue area.* They point out that hyperkinemic effect, as measured by thermoneedles, may extend to a depth of 2.5 cm. below the surface of the skin.

In arthritis, myositis, muscle sprains, bursitis and arthralgia, Baume Bengué induces deep, active hyperemia and local analgesia. Systemically, Baume Bengué promotes salicylate action against underlying disease factors. It provides the high concentration of 19.7% methyl salicylate (as well as 14.4% menthol) in a specially prepared lanolin base to foster percutaneous absorption.

Baume Bengué

1. Lange, K., and Weiner, D.: J. Invest. Dermat. 12:263 (May) 1949.

Thos. Leeming & Co. Inc. 155 East 44th Street, New York 17, N.Y.



when iron alone is not enough

To accelerate recovery in the treatment of microcytic hypochromic anemia, you will want to prescribe **not only iron but all the elements known to be essential for the development and maturation of red blood cells.** This is particularly true when the anemia is the result of blood loss. For prompt and effective hematinic therapy, consider the "Bemotinic" formula below.

each capsule contains:

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Vitamin B_{12} U.S.P. (crystalline)	10.0 mcg.
Gastric mucosa (dried)	100.0 mg.
Desiccated liver substance, N.F.	100.0 mg.
Folic acid	0.67 mg.
Thiamine HCl (B_1)	10.0 mg.
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In macrocytic hyperchromic anemias, "Bemotinic" will provide additional support to specific therapy, or may be used for maintenance once remission has been achieved. In many pernicious anemia patients there is need for iron because of a co-existent iron deficiency.

Suggested Dosage: One or two capsules (preferably taken after meals) three times daily, or as indicated.

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for just the right shade of red

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THE JOURNAL OF DIAGNOSIS AND TREATMENT

MODERN MEDICINE, The Journal of Medical Progress, of Minneapolis, Minn., is published twice monthly on the first and fifteenth of each month, at 55 East 10th Street, St. Paul 2, Minn. Subscription rate: $10.00 a year, 50c a copy.

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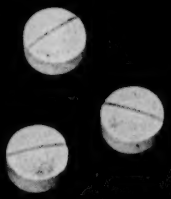
MODERN MEDICINE

THE JOURNAL OF DIAGNOSIS AND TREATMENT

for the more common bacterial infections-diseases

Oral Penicillin t.i.d.



Pentids

Squibb 200,000 Units Penicillin G Potassium Tablets

effective

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When hypos frighten and tablets stick in reluctant throats, both child and parent welcome palatable Suspension 'Neopenzine.' In it the three "ideal" sulfonamides are combined with penicillin—G to provide broad-spectrum antibacterial action. The usual twenty-four-hour dose (one teaspoonful four times a day) provides 800,000 units of penicillin—G and 2 Gm. of the "diazine" sulfonamides. If the urinary output is normal, no alkalies are necessary. Prescribe the 60-cc. potency-protector combination package—available at pharmacies everywhere.

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Lilly

children like
SUSPENSION

(approximately one teaspoonful) contain:
Penicillin—G, Crystalline-Potassium (Buffered) . . . . . 200,000 units
"Diazine" Sulfonamides . . . . . 0.5 Gm.
(Sulfa: Diazine-Merazine-Methazine, of each, 0.167 Gm.)

Neopenzine

(PENICILLIN WITH SULFONAMIDES, LILLY)

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for

October 15

1952

Modern Medicine

Vol. 20, No. 20

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THE MAN ON THE COVER is Dr. J. Edmund Bradley of Baltimore, Md., Professor and Head of the Department of Pediatrics at the University of Maryland School of Medicine. Dr. Bradley is a member of the staffs of University and James Lawrence Kernan hospitals and the School for Crippled Children. A diplomate of the American Board of Pediatrics, he is a member of the Southern Medical Association and American Academy of Pediatrics. "The Control of Vomiting," a Special Article on page 71, was prepared by Dr. Bradley especially for *Modern Medicine*.

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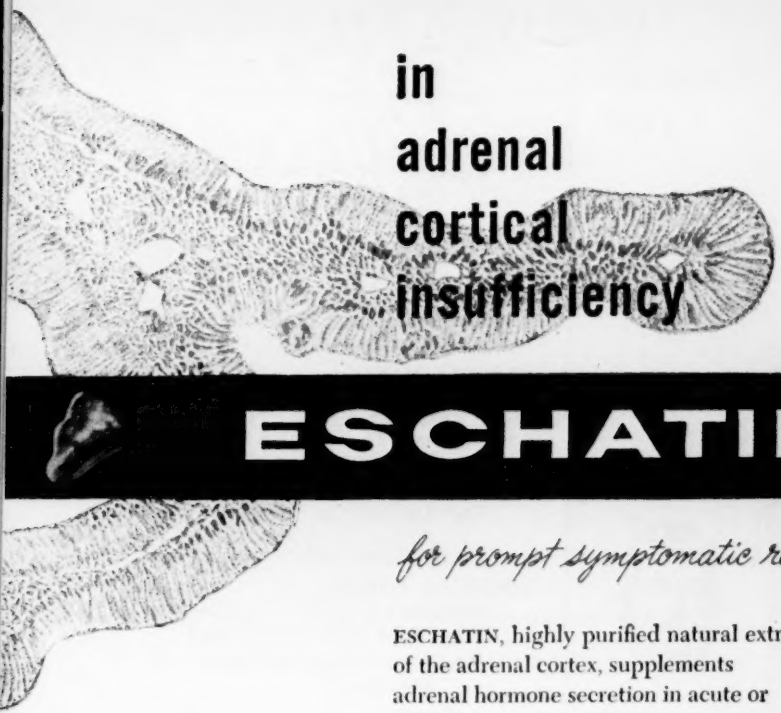

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for prompt symptomatic relief

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ESCHATIN is supplied in 10-cc. and 50-cc. Steri-Vials.®

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Contents for October 15 1952

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LETTER FROM THE EDITOR

Dear Reader:

Many of you have written to tell me how much you liked the series of editorials published in *Modern Medicine* recounting the achievements of Tom Addis. To me he was a wonderful man who never received the recognition that was his due for the remarkable work he did.

Most of you, too, know men who are making signal contributions to the advancement of medicine. They are to be found in every specialty and in every part of the country. They may be teachers, investigators, or men in general practice, but they are touched with genius and are the glory of the profession. We would be poor, indeed, without them.

It would be a fine thing if the readers of *Modern Medicine* could give recognition to these men. And they can. Here is how it may be done. The Editors of *Modern Medicine* will present Modern Medicine Awards for Distinguished Achievement to 10 outstanding physicians at the end of the year. They ask you, the reader, to help by sending in nominations with a brief statement of the reason each nominee should be considered for an award. A coupon is provided on page 168.

With your cooperation, these awards, arising from the considered judgments of the individual members of the medical profession, can rank with the most meaningful honors in medicine.

I urge you to send in your nominations today so that your nominees may be considered in the final selection.

Walter C. Alvarez

EDITOR-IN-CHIEF

Correspondence

Communications from the readers of MODERN MEDICINE *are always welcome. Address communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Kit for Addis' Test

TO THE EDITORS: I have long been a great admirer of Dr. Alvarez' writings. His recent editorials, replete with medical wisdom and profound observations, are a source of inspiration to many others like myself.

Recently Dr. Alvarez emphasized the urinary studies of Thomas Addis regarding kidney function, normal and pathologic *(Modern Medicine,* July 15, 1952, p. 68). If all these laboratory tests of Addis were assembled in one kit, with simple instructions regarding technic, their value to the practitioner would be enhanced considerably. The practitioner is often discouraged if he has to hunt for the apparatus in one direction, the reagents somewhere else, and so on. This discouragement is increased when more than one test is to be performed.

If a kit for all these tests were available, Addis' dream of seeing these tests routinely performed in the physician's office with modest and limited facilities would certainly approach realization.

The manufacturers of laboratory supplies should be apprised of this need, as it seems to me the demand for such a kit would be enormous.

Finally, I should like to say that *Modern Medicine* is the only journal in which I read the editorials first.

ARTHUR L. BOLDEN, M.D.
Philadelphia

A Mother's View

TO THE EDITORS: As a physician's wife, registered nurse, and mother, I sincerely question points made in the article "Rooming in for Maternal-Infant Care" *(Modern Medicine,* Aug. 15, 1952, p. 79).

Pregnancy is a normal physiologic function, yet it is often nine months of minor aches and complaints. Then comes labor, and the delivery, however short the process may be, is still very much felt by the mother.

You advise this new mother, after only twenty-four hours, to start caring for the child. I am aware of the nursing shortage, but didn't think it was that acute. They say an M.D. is a better doctor after having been a patient. Sir, have you had a baby recently? Have you

(Continued on page 23)

Crystamin Forté

Activated oral B_{12}: a new concept in high potency. Crystamin Forte' is the most potent and most economical vitamin B_{12} capsule available for the treatment of macrocytic anemias. Activated by intrinsic factor (desiccated duodenum)[1,2,3,4] ...further potentiated by folic acid.[5]

Crystamin Forté CAPSULES

Each Crystamin Forté capsule contains:

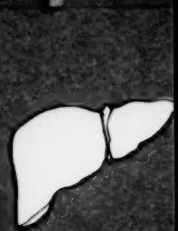
*Crystamin	100 mcg.
Desiccated Duodenum	75 mg.
Folic Acid	1.75 mg.

*The Armour Laboratories Brand of Crystalline B_{12}.

Supplied: Bottles of 30.

THE ARMOUR LABORATORIES

DOUBLE PROBLEM



Bidrolin the first time treats BOTH...

Bidrolin, the first lipotropic-hydrocholeretic, helps prevent and correct fatty infiltration of the liver and exerts a potent flushing effect on the biliary tract in terms of a free flow of a more liquid bile in greater volume.

In Pregnancy. Bidrolin relieves gastrointestinal symptoms common to pregnancy (indigestion, heartburn, constipation), helps prevent the formation of gallstones and supplies lipotropic factors which may be deficient in pregnancy.

After 40. Bidrolin treats "the commonest cause of upper abdominal indigestion in later life," and improves fat digestion and mobilization of fats.

In the Steady Drinker. Bidrolin helps to combat hepatic damage seen in so many heavy drinkers and to control the symptoms of biliary dysfunction and liver involvement (flatulence, anorexia, intolerance for fatty foods).

Bidrolin... a new product of The Armour Laboratories to treat *both* liver dysfunction and biliary dysfunction, contains in each tablet: Choline as Choline Bitartrate (2.5 gr.) with Dehydrocholic Acid (1.9 gr.), an oxidation product of cholic acid derived from natural bile acids.

This insert may be detached for filing.

CHRONIC FATIGUE IS THE MOST PROMINENT SYMPTOM

Generalized muscular aches, palpitation, poor memory, constipation and chronic fatigue are caused by hypothyroidism in a surprisingly high number of patients past 40 years of age. Treatment is of first importance since mild hypothyroidism may induce cumulative harm through hypercholesteremia, myocardial damage, anemia and intellectual regression.[1]

Thyroid ARMOUR—the first uniform, standardized thyroid preparation—produces consistently satisfactory therapeutic results. Return of mental alertness and physical vigor in these patients is the most obvious result of thyroid therapy.

1. Kimble, S. T., and Stieglitz, E. J.: Geriatrics 7: 20, 1952.

SPECIFY thyroid ARMOUR

1/10, 1/4, 1/2, 1, 2 and 5 grain tablets

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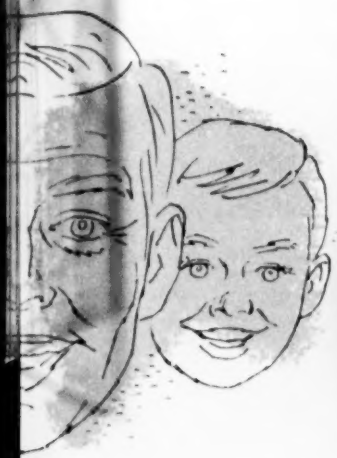

In ANEMIA from pediatrics to geriatrics, Armatinic Liquid not only has taste appeal . . . but also provides a prompt hemopoietic response. Liquid is a recent de... ch. Unwanted ...oved, pleasa... ...nce. Clari... ...ine vitam... ...ic result... ...c anem... ... Each ... Liver ... Amm... ...l. 2.0 ... ...es Bran... ...hol 12.0%.

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Supplied in 8 oz. ...

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PHYSIOLOGIC THERAPEUTICS THROUGH BIORESEARCH

LITHO. U.

ever had huge protruding hemorrhoids, so that you couldn't sit? Or perhaps the drawing pain of episiotomy sutures, so that you couldn't sit or stand? Ah, yes, the third day you have planned so much for her to do, but her breasts are so large and painful that she can't see her pride and joy over the icebags.

I'm not a neurotic person, but I don't believe in your version of the "good old days." I agree with you that the father should not be neglected. Set him up in the next room. This certainly will help the emotional problem, especially if you get an attractive nursery nurse. The mother will be relieved, knowing that her husband and offspring are getting the best of care. She will be so well rested after only five days that she will be able to go home to assume her twenty-four-hour duty for the following twenty-one years.

Your article amused me, and I do hope you won't take offense from my letter.

LOLA ISAACS, R.N.
Jacksonville, Fla.

Dosage Too Small

TO THE EDITORS: May I call your attention to an error in dosage which appeared in *Modern Medicine* on page 38 of the June 15 issue, in the section Questions & Answers. In the answer to the first query on amebiasis, directions are given for the administration of chloroquine, as follows: ". . . *0.05* gm. of chloroquine should be administered twice a day for two days and then 0.25 gm. twice a day . . ."

(Continued on page 26)

The new antispasmodic

BUTISOL-BELLADONNA

. . . produces a more effective antispasmodic action than either belladonna or Butisol Sodium alone,

. . . provides Butisol Sodium, the "daytime sedative", with mild, relatively prolonged action most useful in "functional disorders" and "certain organic diseases"[1],

. . . with naturally occurring belladonna—not the synthetic alkaloids,

. . . is unusually palatable—a light, pleasant tasting elixir, colored an attractive orange-red.

FORMULA:

5 cc. (one teaspoonful) of the elixir represents:

Butisol Sodium (Sodium 5-Ethyl-5-Secondary Butyl Barbiturate McNeil) . . . . . 10 mg. (1/6 gr.)

Ext. Belladonna . . 15 mg. (1/4 gr.)

SUPPLIED:

Elixir Butisol-Belladonna in bottles of one pint and one gallon.

Samples on request.

1. Dripps, R. D.: Selective Utilization of Barbiturates, J.A.M.A. *139*:148-150 (Jan. 15) 1949.

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In irritable colon... emotional diarrhea...

peptic ulcer... pyloro-duodenal irritability...

pyrosis...

functional dysmenorrhea...

diarrhea due to acute

gastroenteritis or

ulcerative colitis...

PHILADELPHIA 32, PA.

The italicized dose should read "0.5 gm." To those familiar with the drug, the error is obvious, but this might not be true for those who have not used it. Although the mistake is not serious, erring on the small side rather than toward overdosage, we would be grateful if a correction could be printed.

M. P. CLARK, LIBRARIAN
Winthrop-Stearns, Inc.
New York City

An Unconsidered Possibility

TO THE EDITORS: In Diagnostix Case MM-221 (*Modern Medicine*, Aug. 15, 1952, p. 124), the patient's major symptomatology was referable to the heart and abdomen. He also had hypertension—systolic pressure 220, diastolic 110. There were chills and fever of 100 to 103° F. He had nausea, hematemesis, and melena. The pain in the right lower quadrant radiated to the back and the right testicle. The liver was enlarged 6 cm. below the costal margin. There was a slightly palpable spleen. In the lungs, râles were present at both bases.

It seems to me that in the discussion of the case the Visiting M. D. should have also considered the possibility of periarteritis nodosa.

Complex symptomatology should always suggest the possibility of polyarteritis. The symptoms are remarkably varied because vessels

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(brand of hydralazine hydrochloride)

Apresoline is a relatively safe, *single* antihypertensive drug with no serious untoward reactions, providing benefits in many cases—complete control in some. It is recommended that Apresoline be used in those hypertensive patients who have not been adequately controlled by conventional regimens (diet, mild sedation, rest, etc.). The following important considerations should be of interest in general practice:

Effective in essential hypertension with fixed levels, early malignant hypertension, toxemias of pregnancy and acute glomerulonephritis.

Provides gradual and sustained reduction of blood pressure with no dangerous, abrupt fall on oral administration.

Affords uniform rate of absorption and infrequent dosage adjustments.

Increases renal plasma flow in marked contrast to the decrease associated with other hypotensive drugs.

Side effects often disappear as therapy is continued or can be ameliorated with adjunctive medication.

Produces significant relaxation of cerebral vascular tone.

Complete information regarding manner of use and clinical application available on request.

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in almost any organ may be involved. The principal vessels to be affected are those of the gastrointestinal canal, the kidney, and the heart. The patient had a year's history of coronary artery disease. In polyarteritis, cardiac complaints suggestive of angina pectoris are not uncommon. Frequent findings are tachycardia, systolic murmurs, and peripheral edema. Cardiac enlargement or pericardial effusion may be present. Myocardial infarction is infrequent, but it has been reported. The infrequency is explained on the basis that the coronary changes occur slowly with ample time for the development of collateral circulation. The electrocardiogram is of considerable importance, and at times may be the only indication of coronary artery involvement. There may be flattening or inversion of the T waves, and evidence of left heart strain. Hypertension is common. Moderate hypertension occurs in most cases as a late manifestation. In some cases the hypertension is

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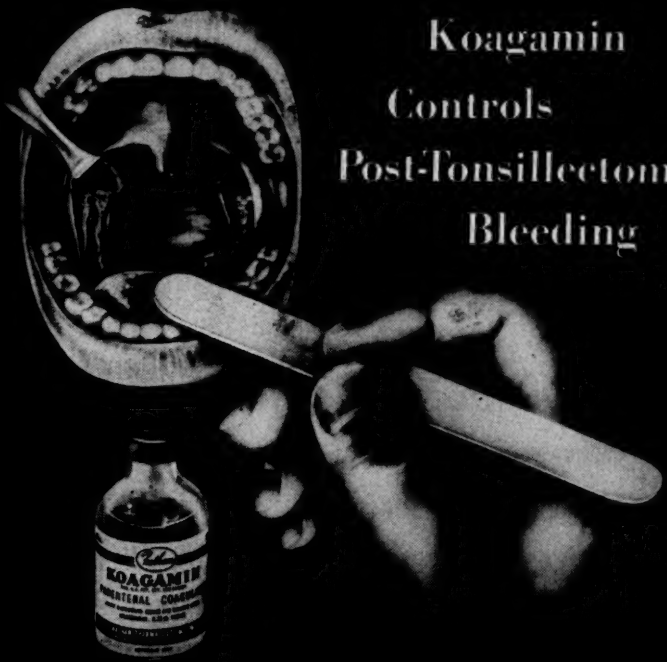
"Hello, Mom. Well, I finally got into a cast!"

Koagamin Controls Post-Tonsillectomy Bleeding



Spontaneous or postoperative bleeding may be controlled with KOAGAMIN easily and quickly.[1] It has been found especially effective in post-tonsillectomy bleeding for its double action — decreasing coagulation time[2] and increasing clot resistance even in hemophiliacs.[3]

KOAGAMIN's direct action on the blood and tissue fluids renders it more useful than vitamin K, effective only when blood prothrombin is low. In such cases, KOAGAMIN is recommended in conjunction with slower-acting vitamin K to effect faster control.

KOAGAMIN

An aqueous solution of [illegible] and malonic acids for parenteral use
in [illegible] diaphragm-stoppered vial
[illegible] descriptive literature and comprehensive dosage chart upon request

THERAPEUTICALLY [illegible] bleeding gastric and duodenal ulcers, hematemesis, hematuria, uterine bleeding, the dyscrasias, etc.

PREOPERATIVELY minimizes oozing, assures a cleaner surgical field.

POSTOPERATIVELY [illegible] bleeding.

[illegible]

Chatham

Available through Your Physician's Supply House or Pharmacist

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"Only A Person Who Can Reduce

For the best clinical results, the obesity regimen must provide a feeling of well-being and satiation, as well as a diet adequate in all nutrients except calories.

AMPLUS supplies not only adequate amounts of Vitamins, Minerals, and Trace Elements to safeguard the reducing patient against nutritional imbalance or deficiencies, but also furnishes dextro-Amphetamine Sulfate to banish persistent pangs of hunger and to alleviate the mental depression which occurs when food is restricted. AMPLUS-treated patients are co-operative and cheerful. They can reduce properly because they feel well—both mentally and physically.

1. Freed, S.C., and Kroger, W.S.: Obesity. J. Insurance Med., 6:12 (Mar., Apr., May) 1951, p. 14.

for sound OBESITY management . . .

J. B. ROERIG AND COMPANY

Feels Well

Properly."[1]

ALL IN ONE CAPSULE

dextro-AMPHETAMINE SULFATE	5 mg.
CALCIUM	242 mg.
COBALT	0.1 mg.
COPPER	1 mg.
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IRON	3.33 mg.
MANGANESE	0.33 mg.
MOLYBDENUM	0.2 mg.
MAGNESIUM	2 mg.
PHOSPHORUS	187 mg.
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ZINC	0.4 mg.
VITAMIN A	5,000 U. S. P. Units
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CALCIUM PANTOTHENATE	3 mg.

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indistinguishable clinically from the malignant type.

Owing to occlusion of the mesenteric vessels there may be severe symptoms simulating those of the acute abdomen. Symptoms and lesions may resemble those of ulcerative colitis. Vomiting, melena, and hematemesis are fairly frequent symptoms. Many patients have hepatomegaly. The patient's complaint of pain in the right lower quadrant radiating to the back and right testicle could be ascribed to kidney involvement. The arteries of the testicle and epididymis are not uncommonly involved. The patient's urinalysis was negative. As a rule the results of urinalysis are of much greater value in the evaluation of the patient than his renal symptoms. However, about 10% of all patients with polyarteritis of the kidney may give negative urinary findings.

Though autopsy confirmed the consultant's opinion, pre-postmortem discussion did not satisfactorily explain the clinical manifestations present. This 48-year-old man had 5 attacks of coronary occlusive disease in one year, requiring five to six weeks' hospitalization each time. It is stated that at no time did he have congestive heart failure. "He had slight dyspnea on exertion for about ten days after leaving the hospital each time, but this sub-

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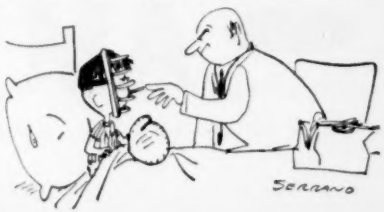

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- for the cardiac patient
- for the asthmatic patient

oral Cardalin provides 5 grains of aminophylline per dose . . . the highest concentration supplied for oral administration. The use of two anti-nausea factors (Aluminum Hydroxide and Ethyl Aminobenzoate) eliminates the nausea, vomiting and gastric irritation that usually accompany high, oral aminophylline dosage.

Each Cardalin tablet contains:

Aminophylline ..... 5.0 gr.
Aluminum Hydroxide ..... 2.5 gr.
Ethyl Aminobenzoate ..... 0.5 gr.

pruritic lesions

dermatoses

eczemas

external ulcers

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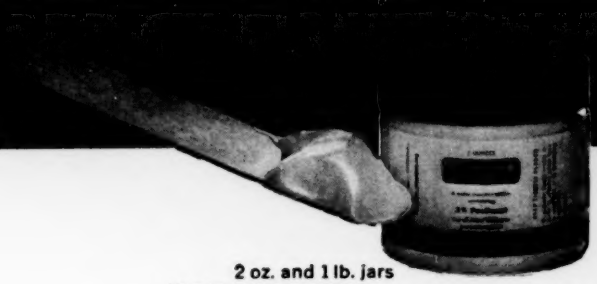

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new studies[1,2] show that topical panthenol (analog of pantothenic acid) "favorably influenced the course of various ulcerative and pyogenic dermatoses. A majority healed and many showed various degrees of improvement."
Even long standing conditions resistant to other therapy seem to respond to Panthoderm Cream which...

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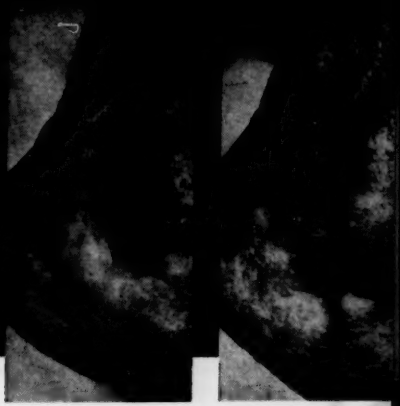
"This preparation (Panthoderm Cream) showed clinical evidence of *epithelizing stimulation*, of an *antipruritic effect*, and of an *antibacterial effect*... in a variety of dermatoses."[1]



Varicose ulcer of ankle, large, deep, profuse foul-smelling discharge.

Healing of ulcer after treatment with Panthoderm Cream for 10 weeks.

1. Kline, P. R., and Caldwell, A.: New York St. J. M., May 1, 1952.
2. Combes, F. C., and Zuckerman, R.: J. Invest. Dermat. 16:379, 1951.

sided and he has never been given digitalis." Yet, further on it is noted that in both lungs râles were present, the liver was enlarged to about 6 cm. below the costal margin, and the spleen was slightly palpable. These findings, if not expressive of myocardial insufficiency, could be explained on the basis of vascular involvement of these organs. If he had myocardial failure, what explanation was given for the hypertension? Anoxia of the vasomotor centers might be, theoretically, an explanation if the patient had advanced congestive heart failure. Low blood pressure is certainly the usual finding clinically.

His chills, high fever, and leukocytosis of 34,000 with 95% polymorphonuclears would fit in better with periarteritis nodosa than with ischemic myocardial necrosis.

What of the sudden death? Was it due to rupture of the myocardium with cardiac tamponade or was it due to a fresh thrombus occluding a main coronary artery? Pericardial tamponade has been noted in periarteritis nodosa following rupture of a coronary artery aneurysm. Sudden death could also be due to hemorrhage from aneurysmal rupture in any vessel the seat of polyarteritis.

A healed or fibrotic stage has occasionally occurred in periarteritis nodosa. Recent reports indicate that cortisone and ACTH are capable of producing prompt subjective relief in this disease. Fever has subsided within twenty-four to seventy-two hours and sediment rates decrease to normal more gradually.

JOSEPH G. WEINER, M.D.
Philadelphia

antispasmin is the most potent of a large series of spasmolytic substances synthesized by Rosenmund and coworkers.[3] Outstandingly effective in the control of spasm associated with peptic ulcers, gastritis, colitis, cardiospasm, dysmenorrhea, and other conditions involving smooth muscle spasm.[3,4,5]

dosage usual adult dose, 1 to 3 tablets daily, taken after meals. In cardiospasm, administer *before* meals.

supplied white, scored tablets, containing 120 mg. *Antispasmin* Citrate, bottles of 100, 500, 1,000. Also available: tablets containing 120 mg. Antispasmin Citrate and 15 mg. Phenobarbital, bottles of 100, 500, 1,000.

1. Kulz, F. and Rosenmund, K.W., Klin. Wchnschr., *17*:344 (1938).
2. Weiss, S., Rev. Gastroenterol., *12*:436 (1945).
3. Kulz, F., Rosenmund, K.W., *et al.*, Ber. deut. chem. Gesellschaft, 72B; 19; 2161 (1939).
4. Lux, E., Klin. Wchnschr., *17*:346 (1938).
5. Ohr, A., Therapie d. Gegenwart, *80*:29 (1939).

Safer—yet 2 to 3 times more powerful than papaverine[1,2]

superior spasmolytic

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Questions & Answers

All questions received will be answered by letter directed to the petitioner; questions chosen for publication will appear with the physician's name deleted. Address all inquiries to the Editorial Department, MODERN MEDICINE, *84 South Tenth Street, Minneapolis 3, Minnesota.*

QUESTION: A 6-year-old patient has had recurrent attacks of otitis media since she had measles two years ago. Both ear drums are perforated. Treatments with ear drops, chemotherapeutic agents, antibiotics, and x-ray have afforded only temporary relief. Recently her hypertrophic adenoids were removed. How much can be expected from adenoidectomy and what treatment do you recommend if the condition remains recalcitrant?

M.D., Tennessee

ANSWER: *By Consultant in Otology.* Uncontrolled attacks of measles involving the ears often result in a necrotic change in the ear drum which may result in a permanent perforation. Some of this necrosis may involve the mucosa of the middle ear space resulting in chronic tissue change which does not heal. In this case, the ears will continue to discharge in spite of local treatment. If evidence of bone disease exists, skilled judgment concerning surgical treatment is indicated. However, mastoid surgery is not usually resorted to in children of this age.

Treatment of infection of the lymphoid tissue in the nasopharynx, including adenoids, may help solve the problem of middle ear discharge.

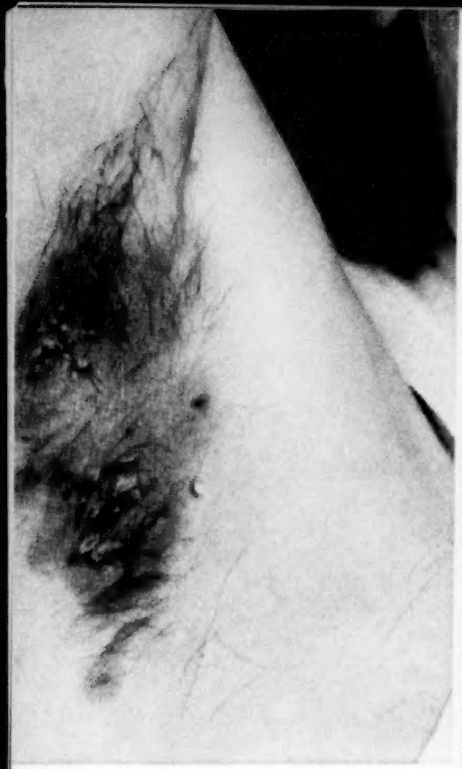
The indications for this treatment are best determined by one experienced in the management of disorders of the nasopharynx and in the use of the special instruments to examine this area.

One of the most difficult operations in this field when done adequately, adenoidectomy goes a long way toward solving some of these problems.

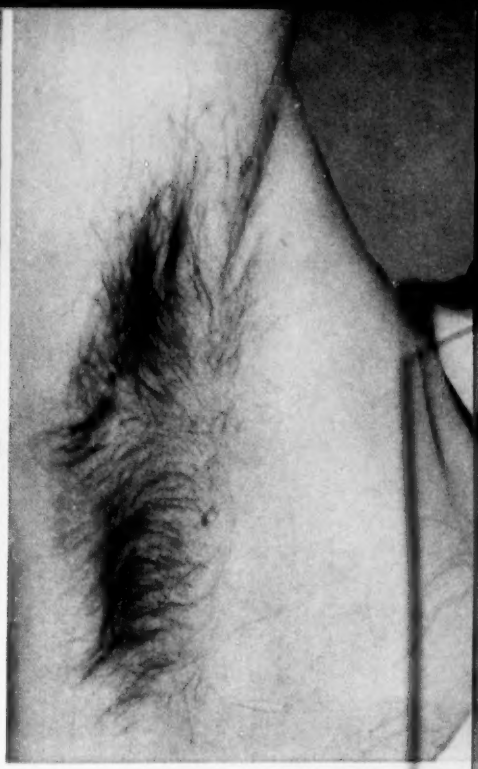
QUESTION: Following a suprapubic prostatectomy about a year ago, a patient has to void every hour or so during the night. As soon as the bladder fills with 1 to 1.5 oz. of urine, a semierection arouses him from sound sleep. Voiding gives immediate relief. Have you any suggestions?

M.D., New Jersey

ANSWER: *By Consultant in Urology.* The difficulty is probably functional in character. The first step is a careful cystoscopy to be sure that healing is complete and that no neoplasm of the bladder exists. Infection, if found, should be eliminated by appropriate local therapy and antibiotics. A contracted vesical neck, if found, should be dilated repeatedly. Mild sedation in the evening and small doses of estrogens administered to prevent erection might also prove helpful.



April 5, 1951. Pruritic seborrheic dermatitis of 6 years' standing. Treatment over the years with various medicaments had failed.



May 24, 1951. After just 7 weeks with 'Pragmatar'. (After one day, itching stopped. After 1 week there was marked clinical improvement.)

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Formula: Cetyl alcohol-coal tar distillate, 4%; near-colloidal sulfur, 3%; salicylic acid, 3%—incorporated in a special washable base.

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This is the second of a series of Norman Rockwell portraits depicting patients typical of those you see in your everyday practice.

of the distress you can see

This typical patient may have a multitude of somatic complaints —some real; some imagined. But he probably will fail to complain of his mental and emotional distress—*distress you can see*. This is the distress that either causes—or to some degree complicates—virtually every condition you are called upon to manage.

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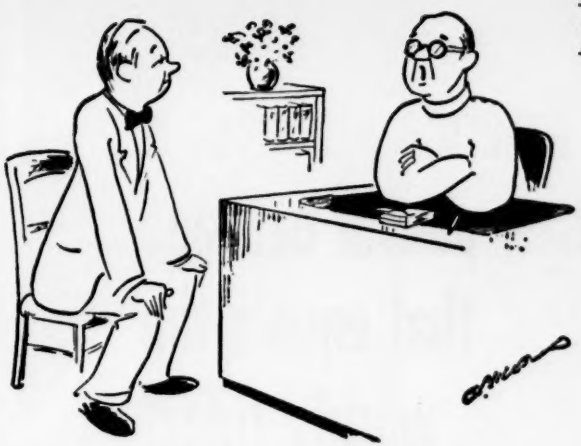

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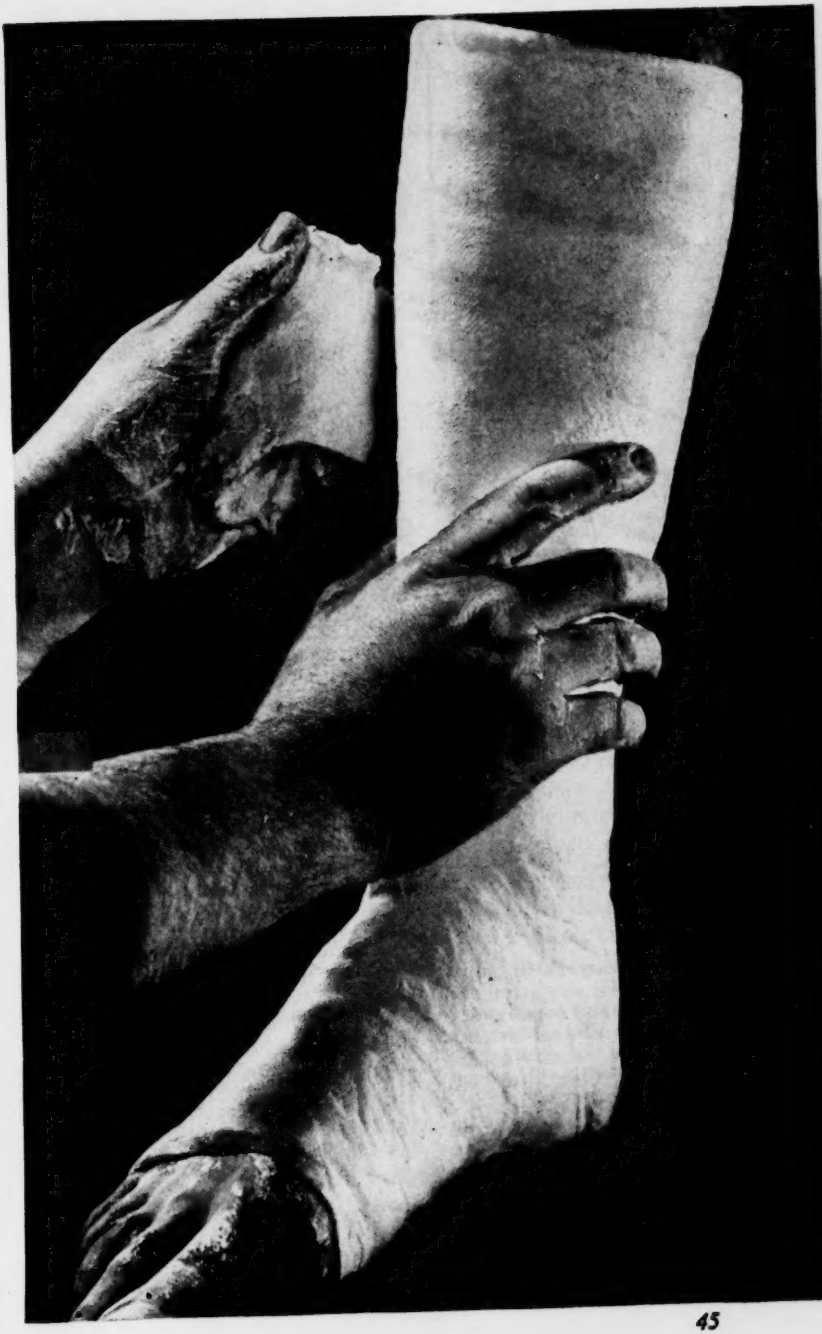

Forensic Medicine

ARTHUR L. H. STREET, LL.B.

Prepared especially for Modern Medicine

PROBLEM: In weighing conflicting medical testimony in workmen's compensation cases, is it proper for a court to consider the background of the lay witnesses and the circumstances in which they are associated with parties to the litigation?

COURT'S ANSWER: Yes.

The U. S. District Court, Eastern District of Louisiana, said that in determining upon conflicting evidence whether a workman was totally disabled, weight should be given to lay testimony, including the employee's own testimony, along with the conflicting medical testimony (105 Fed. Supp. 105).

PROBLEM: A doctor pleaded guilty to abortion, a felony. He was permitted to withdraw the plea and plead guilty to a misdemeanor, on surrendering his medical license. Was he entitled to restoration of his license on the ground that it was illegally revoked?

COURT'S ANSWER: No.

The New York Supreme Court, Albany County, noted that at the hearing of his application for reinstatement it was proved that he had been an abortionist for years. The court declared that, having escaped conviction of a felony by surrendering his license, he was debarred to question the legality of the deal under which he so escaped.

The Committee of Grievances was sympathetically moved by the fact that the doctor had been under emotional strain because of his wife's incurable illness and because his own eyes were diseased. Nevertheless the committee felt that it could not safely recommend his restoration to practice (112 N. Y. Supp. 2d 512).

PROBLEM: The statutes of Georgia, like those of other states, fix a time limit within which a malpractice suit may be brought but provide that if defendant conceals from the patient the facts on which the suit is based, the time for suing shall not commence to run until the patient discovers, or ought to know, the facts. The time limit in Georgia is two years. If a patient engaged a surgeon to perform an appendectomy only, and he also performed a tonsillectomy without her knowledge or consent, could she sue within two years after the doctor disclosed the tonsillectomy, as distinguished from the date of the unauthorized operation?

COURT'S ANSWER: Yes.

In this case, decided by the Georgia Court of Appeals, Atlanta, it appeared that the doctor did not disclose that the tonsillectomy had been performed until two weeks after the operation. That date was treated as the date when the right to sue accrued, in the absence of proof that the patient had earlier

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SULFATRYL granules contain equal portions of three most effective sulfonamides. Addition of 60 cc. distilled water to the prescription bottle quickly makes 90 cc. of a smooth, absolutely uniform suspension.

Uniform composition is the problem most commonly encountered with ordinary triple-sulfonamide suspensions. The solids may settle out, become impacted, virtually impossible to resuspend. Failure to shake the dispensing bottle well may result in inaccurate as well as inadequate doses. SULFATRYL granules overcome this basic problem. Each 90-cc. prescription is made up freshly, by adding 60 cc. of distilled water to the 42 Gm. of coral-pink, dry granules, which go at once into *fresh*, uniform suspension for immediate use.

Composition of SULFATRYL follows the Meth-Dia-Mer Sulfonamides (1:1:1) ratio with sodium citrate as a buffer. Each 5-cc. teaspoonful of the suspension contains 0.5 Gm. of an equal-parts mixture of the three sulfonamides:

Sulfadiazine	0.167 Gm.
Sulfamerazine	0.167 Gm.
Sulfamethazine	0.167 Gm.
Sodium citrate	0.500 Gm.

Sugar and flavoring agents, q.s.

Literature on request.

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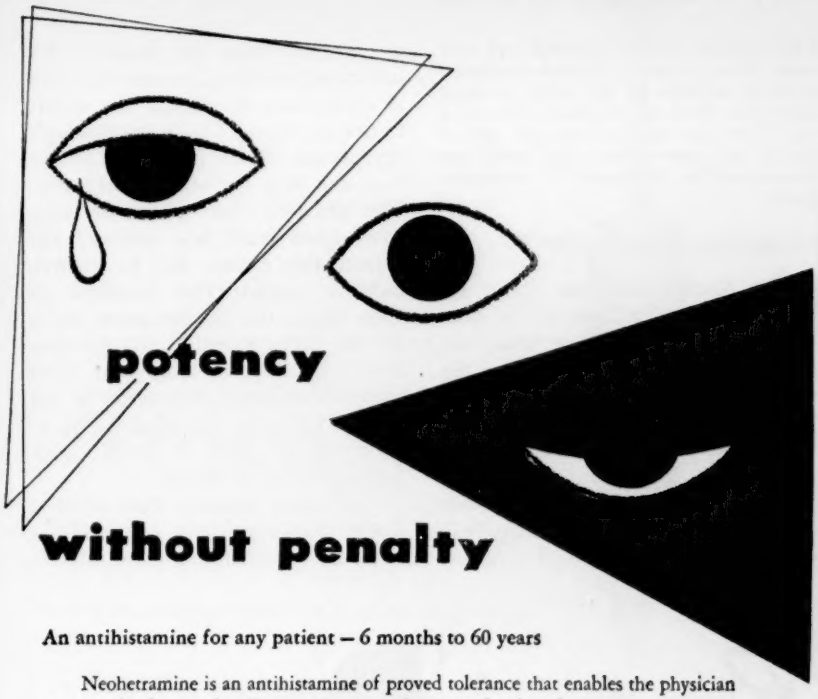
information as to what had happened. The court decided that concealment by the doctor in such cases constitutes fraudulent violation of the confidential relationship of doctor and patient (70 S. E. 2d 85).

PROBLEM: An industrial medical and hospitalization insurance contract covered surgery or medical treatment for cancer. One clause excluded coverage of chronic conditions which might "acutely manifest themselves" within six months after insurance became effective. Another clause excluded coverage of a condition which "definitely existed" previously. Before the insurance took effect, plaintiff had bled rectally, but existence of cancer did not appear until after the six-month period. He sued for benefits. Was he entitled to judgment in the absence of definite proof that the cancerous condition existed when insurance began?

COURT'S ANSWER: Yes.

The Oregon Supreme Court decided, on the basis of medical testimony, that the bleeding was not an "acute" manifestation of cancer, and that the first manifestation appeared much later, when sharp and nauseating abdominal pains led to medical attention and discovery of the cancer.

On the question about "definite existence" of the cancer, as distinguished from "acute manifestation," the court said that medical men do not agree as to just when an internal diseased condition may be determined to exist in a given person at a given time. Because the experts did not agree in this case, a jury's finding, that plaintiff's cancerous condition did not definitely exist until more than six months after the insurance became effective, could not be disturbed (242 Pac. 2d 592).



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Tablets – 25, 50, and 100 mg. in bottles of 100 and 1000.
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PROBLEM: While husband and wife were living apart, a doctor furnished medical services to the wife, without authority from the husband. In suing the latter for his fee, was the doctor bound to prove that the wife had abandoned her husband for justifiable cause?

COURT'S ANSWER: Yes.

The Kansas Supreme Court set aside judgment in favor of the doctor and ordered a new trial, because there was no proof that the husband was at fault in the separation. Few if any courts would disagree with the court's conclusions as follows:

When a husband fails or refuses to furnish necessaries for his wife or to see that she has the means to furnish them for herself, the law conclusively presumes that she is authorized to pledge his credit to obtain them. This is so although the person furnishing them knows that she has no actual authority. The same is true when the wife lives apart from her husband for a justifiable cause. But to enforce liability against the husband in such cases, the doctor must prove all the facts essential to the husband's liability, including the facts that he furnished necessaries to the wife, which the husband failed to provide, and that the wife justifiably left her husband.

The court assumes that when a doctor has previously attended the wife, he is entitled to continue to

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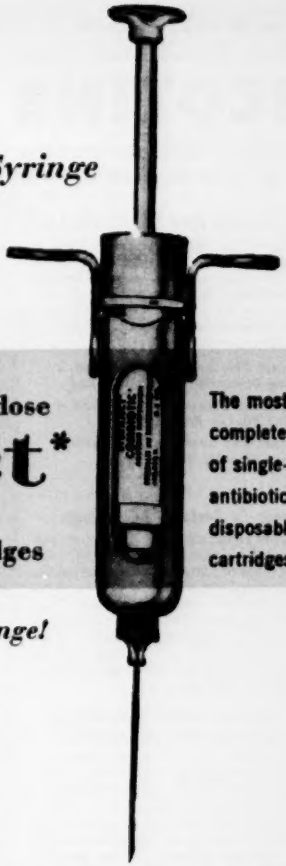

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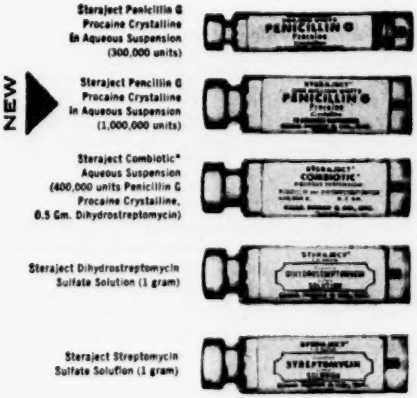

two cartridge sizes permit *full standard* antibiotic dosage

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treat her on the husband's credit as usual until he actually knows of the separation. But a doctor first called to treat the wife is presumed to know of any separation that has previously occurred, whether he actually knows of it or not.

The law does not thrust upon a husband liability for services rendered his wife if she has left him without just cause. It would be shocking to require him to support her away from a good home provided by him, without benefit of her companionship. In this case the husband was a doctor himself, who presumably had treated the wife until the separation (12 Kan. 177).

PROBLEM: In 1841 a Vermont doctor treated a poor patient at the instance of officials of the town of P, under agreement that no charge should be made for the services unless the town should succeed in pending proceedings to have the patient's legal residence fixed in the town of S. In this case it was contemplated that the town of S would be required to reimburse the town of P. It was decided that the patient's residence was in the town of S, but that P was not entitled to reimbursement because, *as between the two towns*, the contract with the doctor was void as being against public policy. Could the town of P defend suit by the doctor to collect a reasonable fee for his services, on the ground that the agreement was illegal as constituting wagering, because the fee was payable only upon a contingency?

COURT'S ANSWER: No.

The Vermont Supreme Court said that the fact that the doctor risked getting nothing did not constitute gambling, for he did not stand to get more than the reasonable value of his services (22 Vt. 291).


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When the demand is for fast, effective and complete pain relief, Strascogesic is significantly superior. Its carefully balanced formula raises pain thresholds to new high levels, markedly improves patient outlook, reduces tension associated with pain. Of particular value in dysmenorrhea, rheumatic or low back pain, muscle and joint pain, neuralgia, neuritis, headaches, colds and grippe.
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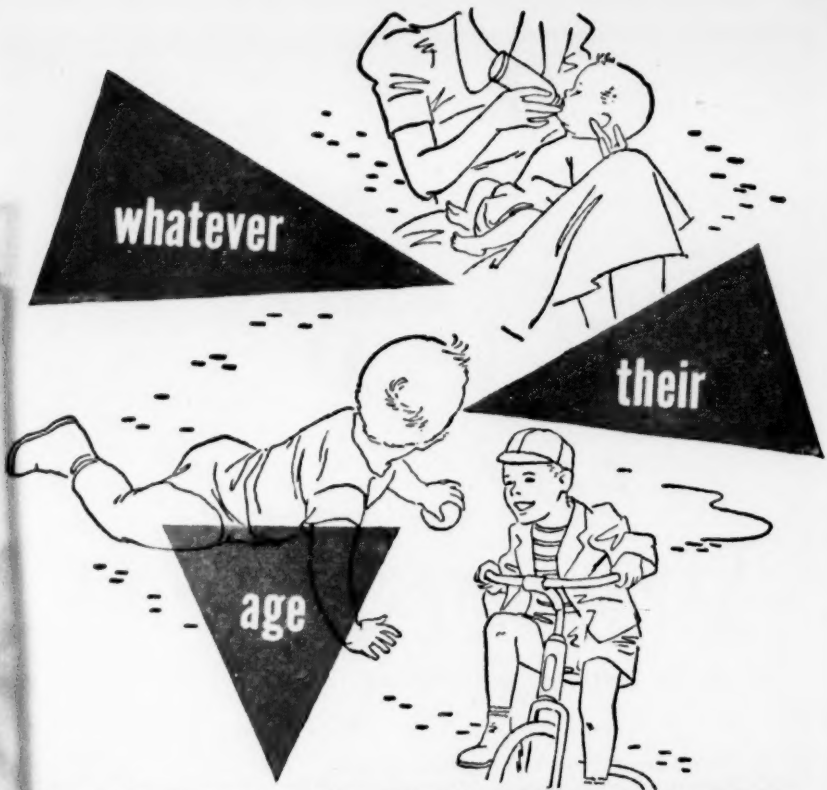

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Washington LETTER

Army May Draft Middle-aged Family Doctors

AT the outbreak of the Korean war, the country faced, among other problems, the critical question of how to get enough physicians into the armed services. This was solved then by the doctor draft law, admittedly drawn up to force into uniforms the several thousand young men who were educated at government expense during World War II or deferred from active duty to stay in college.

Exactly the same problem has come up again, with one important change in the facts—now there is no pool of men who can be considered under special obligation to repay a debt or a favor.

For the next five or six years the majority of physicians drawn into service, voluntarily or involuntarily, will be [1] middle-aged family doctors who were kept at home during the war to protect the civilian health, or [2] younger men who already have spent varying amounts of time in military service, some in a medical capacity and others as GI's. At any rate, unless they can be made to see there is no alternative, these military doctors of the next few years can be expected to accept their commissions with some degree of reluctance.

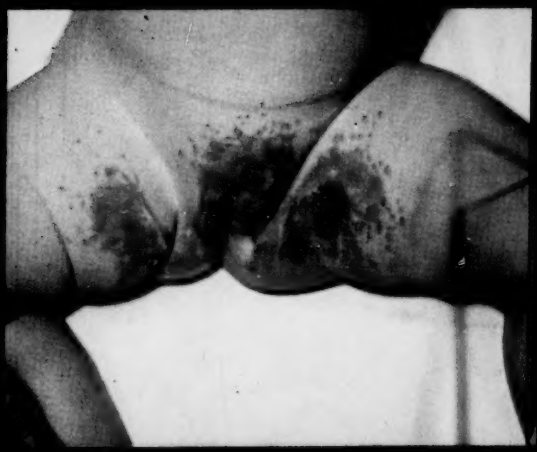
"First of all, the way to a man's heart is not, as commonly thought, through his stomach."

By about 1958, there won't be any problem. By then, nonveterans, who have been deferred from the regular draft to get their educations in the postwar years, will be finishing internship and residencies and will meet requirements of the services. But before they are ready to take over, Army, Navy, and Air Force will have to get doctors from somewhere.

You don't have to be a general or a person-

healing . . . . soothing . . . . protective

a



a August 25. A typical case of diaper rash, characterized by excoriation and soreness.

minus

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b

b September 1. After only one week of local injections with Vitamin A and D Ointment each time diaper was changed, the skin surface is normal.

Vitamin A and D Ointment presents the natural A and D vitamins in a pleasantly fragrant lanolin-petrolatum base. It does not stain the skin.

healing . . . . soothing . . . . protective

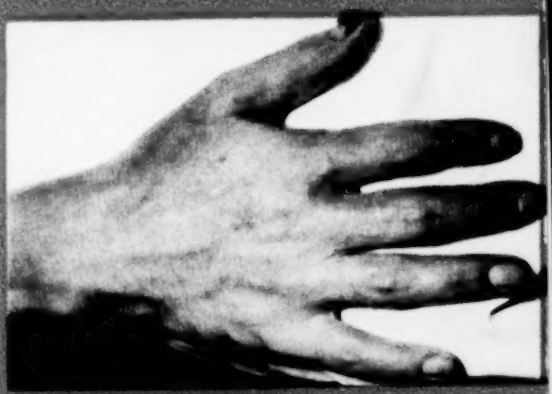
for burns, bedsores, fissured nipples, traumatic lacerations, abrasions, chafing, dry eczema, pruritus and other slow-healing lesions.

c

White's

Vitamin A and D Ointment

d



Supplied in 1¼ oz. tubes, 1 lb. and 5 lb. jars.

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Please send me physician's sample of Vitamin A and D Ointment.

_____ M. D.

_____

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c **September 23.** Second and third degree burns caused by flaming gasoline. Gauze pressure dressings of Vitamin A and D Ointment were changed at weekly intervals.

d **October 23.** Healing is complete, with minimal scar tissue and no contractures.

nel expert to realize that some compulsion will have to be used.

Regular military medical careers just do not appeal to enough young physicians. Specifically, one-third of the authorized positions in the regular medical corps of the three services are not filled as of this date, in spite of everything done to make the life of a military doctor look attractive. Reserves, who make up more than two-thirds of the corps anyway, also are assigned to fill these posts originally marked for regulars.

So, all officials involved in the problem are agreed there will have to be some sort of draft law. The present one expires next July 1, but unless someone who has been silent so far comes up with a magic formula, it will be renewed.

By the middle of next year, that law, whether new or old, will point at two categories of physicians, technically described as Priorities III and IV. Priorities I and II—men the government helped to educate or deferred for educational reasons in World War II—will be exhausted by that time. In Priority III are a few men who were ruled physically unfit for military medical service in the war years, and a larger group deferred to take care of civilian medical needs.

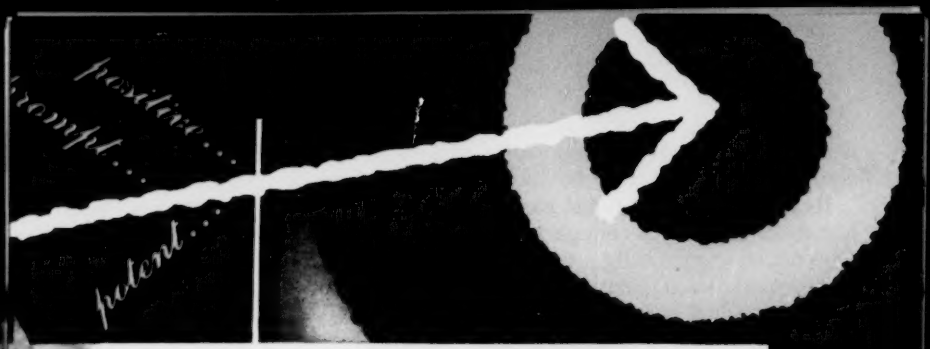
As now written, the law directs Selective Service to use up categories in order, that is, all of Priority III before Priority IV is touched. But this arbitrary rule won't work or, if it is made to work, the medical services will suffer.

Involved are two troublesome questions, home town public relations and rank. The military services appreciate that if they start reaching into communities and picking out middle-aged family doctors there will be protests to Washington every time. Furthermore, the Army doesn't want to disturb too many of these middle-aged, nonveteran doctors for another reason: They'd have to be given too much rank. Instead of first lieutenant and captain, their age and experience would entitle them to major and colonel.

The problem here is not one of financing the extra pay and allowances, but of an overbalance of brass in relation to the other military departments. Again to be specific, the 45- and 50-year-olds in Priority III would, in a year, give the Army medical corps about 3 times as many lieutenant colonels as it now has and more than twice as many majors, but only about a fourth enough captains and one-tenth enough lieutenants.

If another objection is needed, it is apparent that middle-aged doctors, a little plump and a little slow, wouldn't make the best field medical officers, regardless of rank.

"Tulsa, Oklahoma? Yes, this is Dr. Jones. Okay. Put his heart on."



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	Ephedrine Sulfate	⅛ gr.	*Ephedrine Sulfate*	⅛ gr.
	Potassium Iodide	2½ gr.	*Potassium Iodide*	2½ gr.
	Calcium Lactate	2½ gr.	*Calcium Lactate*	2½ gr.
			Pyrilamine Maleate	20 mg.

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So, of necessity the planners are looking into Priority IV, where are grouped all other physicians: those who had long years of medical service in World War II and those who had only a few months, as well as young doctors who served as GI's and for that reason have not been called for postwar service as physicians.

Unless Congress changes the law, these men can't be touched until all eligibles have been taken from Priority III.

It will be surprising if Congress isn't asked to amend the law to allow the military to reach into Priority IV to get some young veterans, to satisfy the bulk of requirements for the next several years. At the same time, it may be expected that some of the older nonveterans from Priority III also will be drawn in to give the medical departments the leavening of experience they need for teaching, specialists, and administrative posts.

There is no easy way out, as many thousands of physicians will learn in the next year or so.

Washington Notes

Executive secretary for the Armed Forces Medical Policy Council, Navy Capt. Hilton W. Rose, has written a concise history of the council and its predecessor organization. It appears in *U.S. Armed Forces Medical Journal* (Vol. 3, no. 7).

Congressional Directories for the last fifteen years show 6 physicians serving in the House every year with the exception of three years: 8 were representatives in 1939, and 5 in both 1941 and 1949. In the same period, only 1 physician has served in the Senate, Royal S. Copeland of New York.

Defense Department will continue its medical supply experiment at Alameda, Calif., at least until all reports on the operation have been checked over. The objective is to carry unification one step further—purchasing is already well consolidated—by setting up a joint system for storing, maintaining, warehousing, and distributing medical items.

Doctors with combat units constantly are exposed to enemy fire, but can't share in combat pay. Defense Department has ruled they're ineligible as long as they receive the $100 a month special pay.

Public health nurses, U.S. Public Health Service admits, after taking a survey, number a few more than last year and are a little better trained on the average, but the country needs between 48 and 60% more.

Expansion of some chemical production, particularly antibiotics, should mean greater supplies and possibly lower prices after a few years. Price changes won't be noticeable until after civil defense stockpiles have been filled out. Tax amortization approval from the federal government helped to stimulate some of the expansion.

Middle-income families in the following cities, according to the

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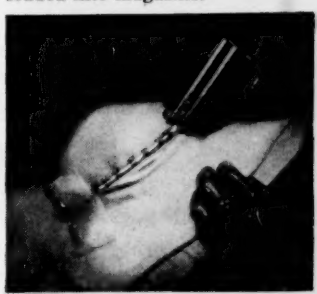


Clipping towels to skin—another important use for Autoclips.

Bureau of Labor Statistics, spend relatively more for medical care than the rest of the country: Los Angeles; Charleston, W.Va.; Lynchburg, Va.; New York City; and Minneapolis.

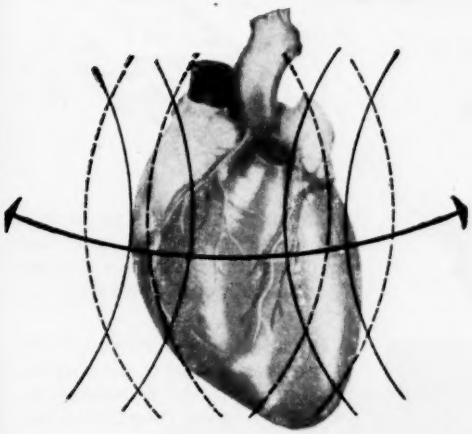
Lay witnesses in the future, unless the U.S. Supreme Court reverses a decision of the Appeals Court at New Orleans, probably will not be allowed to testify as to whether they had cancer or were cured of it. The ruling came as the appeals court granted an injunction against the Hoxsey (Dallas) Cancer Clinic.

Suggestion to turn over federal hospitals to local communities, long popular with a few physicians and hospital leaders, was made at an open hearing of the President's Commission on Health Needs of the Nation. Immediate opposition came from Vice Adm. Joel T. Boone, medical director of Veterans Administration.

Cost surveys for the second quarter show that while physicians' fees continue to increase they are going up at a slightly slower pace than the over-all cost of living.

States have a total of 15 million dollars in federal money for their use, if they want it, in stockpiling medical and other civil defense supplies. So far they have not been too anxious to pick up these funds, which require matching, dollar for dollar, with state money.

In cardiac decompensation



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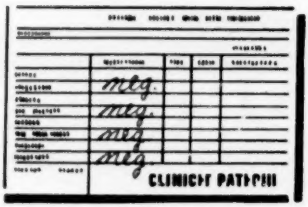

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MODERN MEDICINE

RECENT RESEARCH in Poliomyelitis

A Modern Medicine Editorial

In view of heavy poliomyelitis epidemics which have taken their toll in several parts of this country, physicians will be particularly interested in Dr. James Gear's Bruce Memorial Lecture, published in the July issue of *Annals of Internal Medicine*. In his address, Gear first noted that there are now 3 main types of poliomyelitis virus, the common Brunhilde type, the rarer Lansing type, and the rare Leon type. The protective vaccine that has recently been produced is effective only against the Lansing strain. But the fact that the Lansing strain appears to have been conquered now makes everyone hope that soon something similar will be accomplished with the Brunhilde virus.

Gear tells how in South African laboratories the Lansing virus was repeatedly passed from one little field rodent to another. After forty such passages the virus was a bit attenuated but still strong enough to paralyze 2 out of 7 inoculated monkeys. After 100 passages, it was so weakened it could paralyze only 1 in 10 of the monkeys inoculated. Then 20 human volunteers swallowed some of this weakened virus and, although fecal examination showed that they were carrying some of the virus and had acquired some resistance to the disease, none of them became ill. Now with Theiler's wonderful achievement of growing poliomyelitis virus on tissue cultures, the search for vaccine can go ahead much more rapidly. Workers can quickly see in the test tube that the virus has killed the culture cells.

Interestingly, the experience gained in developing the splendid vaccine against yellow fever is now helping in the search for

a poliomyelitis vaccine. It may be that the desired vaccine will be produced by killing or inactivating virus with formalin. Gear concluded his lecture by saying, "The situation in poliomyelitis is brighter now than it has ever been. The dawn of a new day has come; the day when it will be possible to prevent paralytic poliomyelitis."

WALTER C. ALVAREZ

The Cardiac Patient Hates to Lie Down

In spite of the fact that for centuries physicians have known that the patient with poor cardiac compensation hates to lie flat, practically every patient with a recent coronary infarct is sent to bed. We put him to bed and tell him to stay there for a couple of months or more, and we refuse to listen to him when he says he feels much more comfortable sitting up in a chair.

Dr. Herrick, the great cardiologist, used to say that once when Frank Billings was young he was called to see a man suffering from severe angina pectoris. He found him sitting on the edge of his bed. When Billings told him to get into bed so that he could be examined, the fellow for a time protested. When he gave in and lay down he promptly died! Whereupon Billings discovered two things:

1] The man who cannot lie down without getting anginal pain is very ill.

2] The fellow had better not be compelled to lie down.

Recently Levine and Lown have come to advocate armchair treatment for coronary thrombosis. In this position the circulation in the lungs is better and the aeration of the blood more complete. Levine and Lown tell of patients who were doing badly in bed and who immediately became more comfortable when allowed to sit up in a chair. Patients with severe angina pectoris have told me that when their pain came at night they liked to get out of bed and into a chair.

Levine and Lown allowed 81 patients with acute coronary thrombosis to sit up. The mortality was not worse than that of patients kept in bed. In no case was there any evidence that a death was due to the patient's having been permitted to sit up. Also, the patient's morale is likely to improve.—W.C.A.

Special Article

The Control of Vomiting

J. EDMUND BRADLEY, M.D.*
University of Maryland, Baltimore

Prepared for Modern Medicine

ACCORDING to a survey cited by Jonathan C. Meakins, about 16% of the practitioner's patients complain of nausea and vomiting. In addition are the many others, such as chronic alcoholics or persons with motion sickness, who vomit but do not seek medical attention.

Vomiting is frequently associated with diseases of epidemic origin, contagious diseases, organic disturbances, diseases of the abdominal viscera, pregnancy, and derangements in metabolism and is seen as a rebound after the use of chemotherapeutic agents and as a manifestation of focal infection. Postoperative vomiting due to inhalation anesthesia often follows surgical procedures. The nausea and vomiting of infants are common problems.

The cause of vomiting cannot always be ascertained with accuracy. Episodes may be brought on by a vast array of pathologic and psychic factors not necessarily attributable to disorders of the gastrointestinal tract.

MECHANISM OF EMESIS

The sequence of events that precipitate the vomiting act has been widely described. Gastric tone is suddenly reduced, the cardia relaxes while the pyloric sphincter contracts, and the lower limits of the stomach drop an inch or so. Then, contractions of the muscles of the abdomen and of the diaphragm, in the inspiratory position, force the stomach contents into the esophagus. The stomach plays only a passive part in ejaculating the vomitus.

The visceral movements marking the vomiting act are reflex in nature and are under the control of the vomiting center located in the medulla. This center, in the region of the dorsal nucleus of the vagus nerve, may be stimulated by changes in the normal physiologic quantities of the tissue fluid in the medulla. Such stimulation is said to be central.

Thus, certain substances, such as apomorphine, emetine, and picrotoxin when administered parenterally, cause vomiting by specific action on the center. Toxic metabolites produced by body action or by pathogenic organisms may also excite the center. It is postulated that these substances on reaching the medulla via the blood stream raise the excitability of the vomit-

*Professor and Head of the Department of Pediatrics, University of Maryland School of Medicine, Baltimore.

ing center to a level at which afferent stimuli, normaliy of subthreshold value, may set off the appropriate responses.

Vomiting may also be induced reflexly. Afferent stimuli originating in the mucosa of the gastrointestinal tract may reach the vomiting center by way of the fibers of the vagus and sympathetic nerves. Therefore, obstructions, strangulations, overdistention, and inflammation anywhere along the gut may induce emesis. Also, stimulation of the sensory nerve terminals in the uterus, kidney, bladder, and heart may evoke nausea and vomiting independently of any condition within the tract itself. Vertical movements of the body occurring in travel by plane, train, ship, or car nauseate some individuals by stimulating the utricles near the vestibular nerve.

In reflex, as in central vomiting, the efferent impulses are conveyed along a variety of routes, principally in the phrenics, vagi, and sympathetic fibers.

Functional vomiting should be carefully distinguished from organic vomiting. Grave consequences may follow if evidences of organic derangement, such as tumors or acute conditions requiring surgical therapy, are masked by treatment designed to control vomiting alone.

TREATMENT

Functional vomiting is often self-limited and requires little medical attention but, when severe, prolonged, and marked by complications, systematic treatment is obviously indicated. Prolonged vomiting is attended by a derangement in carbohydrate metabolism and, depending upon circumstances, dehydration with acidosis or alkalosis. Such disorders frequently result when sustained vomiting and anorexia occur during pregnancy. For this reason, dextrose solutions, 5 to 10%, or dextrose and saline may be administered intravenously. Vitamin B complex and its individual constituents are used orally and intramuscularly.

In managing the vomiting of pregnancy, Vincent DeP. Fitzpatrick and associates found that more than 50% of their patients responded to routine procedures consisting of small dry feedings. Favorable response was obtained in 18 of 25 refractory cases by routine therapy supplemented with oral doses of a polyamine anion exchange resin (Resion), a multiple intestinal adsorbent which removes a variety of toxic substances, the products of bacterial metabolism, from the gastrointestinal tract. The agent also adsorbs histamine, which induces smooth muscle spasm and is therefore a possible cause of vomiting during pregnancy.

Both dextro-amphetamine sulfate (Dexedrine) and diphenhydramine-8-chloro-theophylline (Dramamine) have also been reported successful in controlling the nausea and vomiting of pregnancy.

There is no agreement on the basic cause or causes of vomiting of pregnancy. That psychic factors play a significant role is strongly suggested. Indeed, Beckman states, "Severe symptoms vanish when an obnoxious person, not infrequently

the husband, is entirely banished from the presence of the patient."

When psychic disorders, whether or not associated with pregnancy, produce functional vomiting, phenobarbital may be helpful. However, the possible occurrence of skin rashes and of paradoxic effects in hypersensitive patients must be remembered.

Antispasmodic drugs are quite popular as treatment for refractory functional vomiting and are often effective. The symptoms of blurred vision and toxicoderma are indications of atropine reactions.

Vomiting after morphine administration is one of the most distressing forms of emesis. The action is said to be central in origin or due to direct stimulation of the vomiting center. Fluoroscopic observation has shown that morphine may produce duodenal spasm. Rubin and Winston report that 100 mg. of Dramamine given one hour before and after the administration of morphine was effective in preventing nausea and vomiting for 6 medical students.

The role of the antihistamines in preventing motion sickness is not understood. That the beneficial effect is not the result of antihistaminic action is suggested by the data which show that only two of the antihistamines have antiemetic effects, namely, diphenhydramine-hydrochloride (Benadryl) and Dramamine. A central nervous action has been postulated; this might be suspected from the drowsiness which occurs in some patients after receiving an antihistamine. However, in other individuals a stimulating effect is observed, which is against a central effect.

The action remains unexplained, but the antihistamines continue to be reported as effective in the prophylaxis of motion sickness. Recently, a combination of Hyoscine and Benadryl has been used for the control of air sickness.

Sedatives and antispasmodics continue to be popularly used in an endeavor to control the vomiting of infants.

When infants persistently vomit, especially if artificially fed, and organic causes have been excluded, an alteration in dietary regimen is indicated. Smaller, less frequent feedings may be called for in some cases. In others, the fat content in the diet should be reduced. Dietary sensitivity is responsible in some cases and a substitute for cow's milk may be needed.

Maintaining the infant in an upright position for an hour after feeding is helpful in cases of chalasia of the esophagus.

The oral administration of a carbohydrate-phosphoric acid solution (Emetrol) has been reported to cause cessation or lessening of vomiting for a high percentage of individuals with functional nausea. Among the conditions stated to respond favorably are epidemic vomiting, regurgitation in infants, toxic vomiting, and motion sickness. No side effects were noted in the studies made. The effectiveness of the solution depends upon combining carbohydrate and phosphoric acid at an optimally determined hydrogen ion concentration. This concentration must not be changed

when administered to patients; the significance is not apparent, but studies suggest an effect on smooth muscle contraction.

Epidemic vomiting, which seasonally plagues the populace, reportedly responds to the use of a beverage syrup or to Emetrol. Patients must be maintained on a low-residue, fat-free diet for at least twenty-four hours after the onset of vomiting.

As pointed out, functional vomiting is usually self-limited; hence it is difficult to evaluate the efficacy of treatment.

The practitioner, who is confronted daily with the treatment of vomiting, may find solace or disappointment in the vast array of preparations at his therapeutic disposal. Whatever his reaction, he must realize that many of the preparations may cause distressing side effects and that these drugs do not relieve him of the obligation to search carefully for organic causes for vomiting.

Precordial Migraine

JOHN FRANCIS BRIGGS, M.D., AND JAMES BELLOMO, M.D.

THE same type of disorder that causes migraine may produce chest symptoms that are easily mistaken for organic heart disease.

Headache may be related not only to ocular and gastrointestinal symptoms but to manifestations in many other parts of the body, such as renal colic. Abdominal or cardiac effects may be so violent as to overshadow the headache.

Severe cardiac distress as a migraine equivalent is unusual but may occur alone. If so, the condition may be diagnosed only by obtaining a record of symptoms associated with head pain, either as part of the cephalalgic phase or with other organic disturbances typical of that particular case. Any combination of cardiac symptoms or a single one may occur during or after the headache.

Among 684 patients with migraine, John Francis Briggs, M.D., of the University of Minnesota, Minneapolis, and James Bellomo, M.D., of St. Paul found 159 with cardiac manifestations.

Palpitation developed in 83, simple tachycardia in 14, and paroxysmal tachycardia in 3. Nondescript forms of chest pain were felt by 92, and a rather definite anginal type of pain by 37. Electrocardiograms were irregular in 24 cases, and hypertension was noted in 43. Neither abnormal tracings nor high blood pressure was related to precordial migraine.

A Minnesota Multiphasic Personality Inventory test applied to 34 subjects was abnormal for 31.

Precordial migraine. Dis. of Chest 21:635-640, 1952.

Unmodified insulin denatured by boiling will tide diabetic patients over period of initial sensitization.

Insulin Allergy and Insulin Resistance

HENRY DOLGER, M.D.
Mount Sinai Hospital, New York City

LOCAL cutaneous reactions to insulin injections are ordinarily the result of secondary proteins or impurities in the insulin, while the rare generalized allergic reactions represent sensitization to the insulin protein.

Henry Dolger, M.D., finds that antihistamine therapy is useful if lesions are moderately distressing. For severe reaction, either rapid desensitization or use of denatured insulin is effective.

Local cutaneous reaction—Redness, swelling, and itching at the site of insulin injection occur in 10 to 20% of patients seven to ten days after start of therapy. Such reactions can be extremely annoying and discouraging to a patient just beginning to adjust to the ritual of insulin injection.

The local reactions are attributable to sensitization to impurities, to traces of secondary protein, or to the modifiers such as protamine and globin, or to irritation by the nonisotonic buffer with an acid *p*H in regular, crystalline zinc, or globin insulin.

Reassurance that effects will disappear spontaneously is sufficient in slight cases. Changing the brand of insulin is effective only if a known sensitivity exists to the specific animal protein used.

For moderate reactions, such antihistamine ointments as Benadryl or Pyribenzamine may be applied to the site *before* insulin injection. Reactions are often prevented or decreased if 0.5 to 1 cc. of 1:1,000 Benadryl solution is added to the insulin in the syringe, or by oral administration of 25 to 50 mg. of Benadryl hydrochloride or Pyribenzamine one to two hours before insulin dosage. Subsequent doses on a four-hour schedule depend on severity of reaction.

Desensitization to insulin can be achieved within twenty-four hours. Three dilutions—1:1,000, 1:100, and 1:10—of crystalline zinc insulin are prepared; 0.1 cc. of the weakest dilution is administered initially followed by an increase of 0.1 cc. every half hour until 1 cc. of the dilution is given. The same progressive dosage scale is used for each of the two remaining dilutions, progressing to the final 1-cc. dose. Undiluted crystalline zinc insulin is given in the same manner, beginning with 0.1 cc. and increasing 0.1 cc. every hour until the physiologic effect or best dose of insulin is attained. When fully desensitized,

The management of insulin allergy and insulin resistance in diabetes mellitus. M. Clin. North America 36:783-790, 1952.

the patient tolerates any slow acting insulin.

Recrystallized insulin will effectively tide patients over the period of allergic sensitization.

If such a purified protein is not immediately available, immersing a vial of crystalline zinc insulin in boiling water for thirty minutes is the most rapid method of obtaining the denatured product. This procedure is not applicable to modified insulins, protamine zinc, globin, or NPH insulin. Therefore, several daily injections are necessary, as when using regular insulin.

Generalized allergic reactions—Like other forms of allergy, sensitization to insulin develops gradually so that the generalized symptoms arise only after the first or second week of treatment or appear immediately after reintroduction of insulin therapy when a lapse of several months or years has occurred. Generalized urticaria, dyspnea, stridor, arthralgias, and similar manifestations appear.

In an acute insulin emergency only two procedures are available: [1] rapid desensitization to insulin, or [2] use of denatured insulin. The latter offers the simplest and quickest means of obtaining urgently needed insulin effects when the patient has severe generalized reactions to the hormone.

Insulin resistance—Although the origin is unknown in most cases, unresponsiveness to insulin is occasionally induced by allergy to insulin, acute infection, diabetic acidosis, liver disease, or hyperfunction of the thyroid and anterior pituitary glands and the adrenal cortex.

Treatment consists of the administration of as much insulin as needed to insure adequate utilization of food. Insulin resistance is usually a transitory phenomenon and most patients return to previous requirements after several months.

In rare instances, complete remission of diabetes follows a period of resistance.

¶ DIAGNOSIS OF AMEBIASIS cannot be made by complement fixation despite the specificity of the test. Microscopic study of warm stool specimens by well-trained technicians is the best laboratory aid in detecting infestation. Among 553 unselected hospital patients for whom complement fixation tests were made, 49 positive results were obtained, but existence of the disease could be shown in only 1 instance. Positive reactions were reported in 24 of 63 proved cases. Elwood Buchman, M.D., Harold J. Kullman, M.D., and George F. Margonis of Wayne University, Detroit, and the Veterans Administration Hospital, Dearborn, Mich., conclude that the high incidence of false positive reactions precludes use of the method as a screening procedure in establishing diagnosis or seeking carriers, though a positive reaction may be considered as supportive to a diagnosis of amebiasis.

Gastroenterology 21:391-399, 1952.

The only known effective treatment for cerebral Buerger's disease is cessation of smoking.

Cerebral Thromboangiitis Obliterans

HEINZ I. LIPPMANN, M.D.
Montefiore Hospital, New York City

DIAGNOSIS of cerebral Buerger's disease is probably made too often, since the incidence of cerebrovascular complications in thromboangiitis obliterans is less than 0.5%.

However, the condition should be suspected among young people with cerebrovascular thrombosis who smoke and who do not have rheumatic heart disease or other sources of emboli, hypertension, diabetes, brain tumor, or multiple sclerosis.

A diagnosis of cerebrovascular thrombosis with Buerger's disease is justified only if peripheral lesions coexist, according to Heinz I. Lippmann, M.D., and is probably not warranted if the patient doesn't smoke. The overwhelming experience has been that all patients with the disease are smokers.

Peripheral Buerger's disease must be differentiated from arteriosclerosis, symptoms of aging, arteritides and phlebitides, as with syphilis or tuberculosis, and vascular injuries, such as frostbite.

The cerebrovascular lesions are manifested in recurrent cortical signs, such as fleeting monoplegia, hemianopsia, hemiplegia, paresis, and aphasia. Prostration, perspiration, dizziness, and transient visual disorders may appear first.

Retinal artery spasm, retinal vein sheathing, and central retinal artery thrombosis may occur, although permanent changes of the retinal arteries are rare.

Grand and petit mal seizures are possible. These involve the limbs previously affected, paralyzed or paretic, and if jacksonian, do not spread over other parts of the body.

The clinical course is dependent largely upon whether the patient continues to smoke. Those who do not give up smoking have more and graver symptoms until death. The others may enjoy slight improvement, at least the progression of the disease is halted for all practical purposes.

If the initial damage inflicted on the brain has been extensive, the prognosis is poor. When hemiparesis or hemiplegia has lasted longer than a few months, the chances for a functional recovery are slight. Aphasias do not improve significantly even when speech reeducation is attempted.

Cessation of smoking is the only known effective treatment of cerebrovascular thromboangiitis obliterans. Blocking or removal of the cervical sympathetic chain and use of sympatholytics and anticoagulants have not proved beneficial.

Cerebrovascular thombosis in patients with Buerger's disease. Circulation 5:680-692, 1952.

Much of a physician's time may be saved by a history form that the patient fills out without supervision.

Self-administered Health Questionnaire

A. J. ERDMANN, JR., M.D., K. BRODMAN, M.D., I. LORGE, PH.D., AND H. G. WOLFF, M.D.
New York Hospital, New York City

SELECTION of patients who need general medical care in addition to investigation of the symptom that caused them to seek the aid of a physician requires the taking of a detailed and comprehensive history.

To collect such a history from each outpatient is impossible by usual methods, for general hospitals lack both the facilities and the staff that would be necessary. Oral interviews are inadequate. Consequently, the needs of some patients may not be recognized and grave disorders may be neglected.

A 4-page, self-administered form has been devised to provide the admitting physician with the means for quickly identifying the patients who need general medical care. The form, called the Cornell Medical Index-Health Questionnaire,* contains 195 questions which the patient answers by circling either the "yes" or "no" printed after each.

Forms for men and women differ in some respects.

The data collected are accurate and significant, yielding comprehensive diagnostic interpretations of the somatic and psychiatric aspects of the patient's total medical problem. Examination and interpretation of the questionnaire can usually be completed by the admitting physician in about two minutes.

At New York Hospital, admitting physicians recognized that 79 of 336 consecutive outpatients needed referral to the general medical department. On the basis of health questionnaires filled out by the same 336 patients, general medical care was indicated for 251 patients and the need was urgent in 59 cases, A. J. Erdmann, Jr., M.D., K. Brodman, M.D., I. Lorge, Ph.D., and H. G. Wolff, M.D., report. Significant disorders were inferred from the self-administered health questionnaire in an average of 6.8 diagnostic areas per patient but had been recognized in the hospital in an average of only 2.7.

Judicious selection of cases with the aid of the questionnaire reduces the hazard of overlooking significant disease by referring too few patients to the general medical department, or of overburdening the facilities of the hospital by referring too many.

Cornell medical index-health questionnaire. J.A.M.A. 149:550-551, 1952.

*Sample copies of the Cornell Medical Index-Health Questionnaire may be obtained from the authors, New York Hospital, 525 E. 68th St., New York City 21.

History Number_____

(MEN) **CORNELL MEDICAL INDEX**

HEALTH QUESTIONNAIRE

Date_____

Print Your Name_____ Your Home Address_____

How Old Are You?_____

Circle If You Are . . Single, Married, Widowed, Separated, Divorced.

Circle the Highest Year You Reached In School

1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4
Elementary School	High	College

What Is Your Occupation?_____

Directions: This questionnaire is for *MEN ONLY*.
If you can answer YES to the question asked, put a circle around the Yes
If you have to answer NO to the question asked, put a circle around the No
Answer all questions. If you are not sure, guess.

A

1. Do you need glasses to read? Yes No
2. Do you need glasses to see things at a distance? Yes No
3. Has your eyesight often blacked out completely? Yes No
4. Do your eyes continually blink or water? Yes No
5. Do you often have bad pains in your eyes? Yes No
6. Are your eyes often red or inflamed? Yes No
7. Are you hard of hearing? Yes No
8. Have you ever had a bad running ear? Yes No
9. Do you have constant noises in your ears? Yes No

B

10. Do you have to clear your throat frequently? Yes No
11. Do you often feel a choking lump in your throat? Yes No
12. Are you often troubled with bad spells of sneezing? Yes No
13. Is your nose continually stuffed up? Yes No
14. Do you suffer from a constantly running nose? Yes No
15. Have you at times had bad nose bleeds? Yes No
16. Do you often catch severe colds? Yes No
17. Do you frequently suffer from heavy chest colds? Yes No
18. When you catch a cold, do you always have to go to bed? Yes No
19. Do frequent colds keep you miserable all winter? Yes No
20. Do you get hay fever? Yes No
21. Do you suffer from asthma? Yes No
22. Are you troubled by constant coughing? Yes No
23. Have you ever coughed up blood? Yes No
24. Do you sometimes have severe soaking sweats at night? Yes No
25. Have you ever had a chronic chest condition? Yes No
26. Have you ever had T.B. (Tuberculosis)? Yes No
27. Did you ever live with anyone who had T.B.? Yes No

C

28. Has a doctor ever said your blood pressure was too *high?* Yes No
29. Has a doctor ever said your blood pressure was too *low?* Yes No
30. Do you have pains in the heart or chest? Yes No
31. Are you often bothered by thumping of the heart? Yes No
32. Does your heart often race like mad? Yes No
33. Do you often have difficulty in breathing? Yes No
34. Do you get out of breath long before anyone else? Yes No
35. Do you sometimes get out of breath just sitting still? Yes No
36. Are your ankles often badly swollen? Yes No
37. Do cold hands or feet trouble you even in hot weather? Yes No
38. Do you suffer from frequent cramps in your legs? Yes No
39. Has a doctor ever said you had heart trouble? Yes No
40. Does heart trouble run in your family? Yes No

OPEN TO NEXT PAGE

D

41. Have you lost more than half your teeth? Yes No
42. Are you troubled by bleeding gums? Yes No
43. Have you often had severe toothaches? Yes No
44. Is your tongue usually badly coated? Yes No
45. Is your appetite always poor? Yes No
46. Do you usually eat sweets or other food between meals? Yes No
47. Do you always gulp your food in a hurry? Yes No
48. Do you often suffer from an upset stomach? Yes No
49. Do you usually feel bloated after eating? Yes No
50. Do you usually belch a lot after eating? Yes No
51. Are you often sick to your stomach? Yes No
52. Do you suffer from indigestion? Yes No
53. Do severe pains in the stomach often double you up? Yes No
54. Do you suffer from constant stomach trouble? Yes No
55. Does stomach trouble run in your family? Yes No
56. Has a doctor ever said you had stomach ulcers? Yes No
57. Do you suffer from frequent loose bowel movements? Yes No
58. Have you ever had severe bloody diarrhea? Yes No
59. Were you ever troubled with intestinal worms? Yes No
60. Do you constantly suffer from bad constipation? Yes No
61. Have you ever had piles (rectal hemorrhoids)? Yes No
62. Have you ever had jaundice (yellow eyes and skin)? Yes No
63. Have you ever had serious liver or gall bladder trouble? Yes No

E

64. Are your joints often painfully swollen? Yes No
65. Do your muscles and joints constantly feel stiff? Yes No
66. Do you usually have severe pains in the arms or legs? Yes No
67. Are you crippled with severe rheumatism (arthritis)? Yes No
68. Does rheumatism (arthritis) run in your family? Yes No
69. Do weak or painful feet make your life miserable? Yes No
70. Do pains in the back make it hard for you to keep up with your work? Yes No
71. Are you troubled with a serious bodily disability or deformity? Yes No

F

72. Is your skin very sensitive or tender? Yes No
73. Do cuts in your skin usually stay open a long time? Yes No
74. Does your face often get badly flushed? Yes No
75. Do you sweat a great deal even in cold weather? Yes No
76. Are you often bothered by severe itching? Yes No
77. Does your skin often break out in a rash? Yes No
78. Are you often troubled with boils? Yes No

G

79. Do you suffer badly from frequent severe headaches? Yes No
80. Does pressure or pain in the head often make life miserable? Yes No
81. Are headaches common in your family? Yes No
82. Do you have hot or cold spells? Yes No
83. Do you often have spells of severe dizziness? Yes No
84. Do you frequently feel faint? Yes No
85. Have you fainted more than twice in your life? Yes No
86. Do you have constant numbness or tingling in any part of your body? Yes No
87. Was any part of your body ever paralyzed? Yes No
88. Were you ever knocked unconscious? Yes No
89. Have you at times had a twitching of the face, head or shoulders? Yes No
90. Did you ever have a fit or convulsion (epilepsy)? Yes No
91. Has anyone in your family ever had fits or convulsions (epilepsy)? Yes No
92. Do you bite your nails badly? Yes No
93. Are you troubled by stuttering or stammering? Yes No
94. Are you a sleep walker? Yes No
95. Are you a bed wetter? Yes No
96. Were you a bed wetter between the ages of 8 and 14? Yes No

GO TO NEXT PAGE

H

97. Have you ever had anything seriously wrong with your genitals (privates)? Yes No
98. Are your genitals often painful or sore? Yes No
99. Have you ever had treatment for your genitals? Yes No
100. Has a doctor ever said you had a hernia (rupture)? Yes No
101. Have you ever passed blood while urinating (passing water)? Yes No
102. Do you have trouble starting your stream when urinating? Yes No
103. Do you have to get up every night and urinate? Yes No
104. During the day, do you usually have to urinate frequently? Yes No
105. Do you often have severe burning pain when you urinate? Yes No
106. Do you sometimes lose control of your bladder? Yes No
107. Has a doctor ever said you had kidney or bladder disease? Yes No

I

108. Do you often get spells of complete exhaustion or fatigue? Yes No
109. Does working tire you out completely? Yes No
110. Do you usually get up tired and exhausted in the morning? Yes No
111. Does every little effort wear you out? Yes No
112. Are you constantly too tired and exhausted even to eat? Yes No
113. Do you suffer from severe nervous exhaustion? Yes No
114. Does nervous exhaustion run in your family? Yes No

J

115. Are you frequently ill? Yes No
116. Are you frequently confined to bed by illness? Yes No
117. Are you always in poor health? Yes No
118. Are you considered a sickly person? Yes No
119. Do you come from a sickly family? Yes No
120. Do severe pains and aches make it impossible for you to do your work? Yes No
121. Do you wear yourself out worrying about your health? Yes No
122. Are you always ill and unhappy? Yes No
123. Are you constantly made miserable by poor health? Yes No

K

124. Did you ever have scarlet fever? Yes No
125. As a child, did you have rheumatic fever, growing pains or twitching of the limbs? Yes No
126. Did you ever have malaria? Yes No
127. Were you ever treated for severe anemia (thin blood)? Yes No
128. Were you ever treated for "bad blood" (venereal disease)? Yes No
129. Do you have diabetes (sugar disease)? Yes No
130. Did a doctor ever say you had a goiter (in your neck)? Yes No
131. Did a doctor ever treat you for tumor or cancer? Yes No
132. Do you suffer from any chronic disease? Yes No
133. Are you definitely *under* weight? Yes No
134. Are you definitely *over* weight? Yes No
135. Did a doctor ever say you had varicose veins (swollen veins) in your legs? Yes No
136. Did you ever have a serious operation? Yes No
137. Did you ever have a serious injury? Yes No
138. Do you often have small accidents or injuries? Yes No

L

139. Do you usually have great difficulty in falling asleep or staying asleep? Yes No
140. Do you find it impossible to take a regular rest period each day? Yes No
141. Do you find it impossible to take regular daily exercise? Yes No
142. Do you smoke more than 20 cigarettes a day? Yes No
143. Do you drink more than six cups of coffee or tea a day? Yes No
144. Do you usually take two or more alcoholic drinks a day? Yes No

TURN TO NEXT PAGE

M

145. Do you sweat or tremble a lot during examinations or questioning? Yes No
146. Do you get nervous and shaky when approached by a superior? Yes No
147. Does your work fall to pieces when the boss or a superior is watching you? Yes No
148. Does your thinking get completely mixed up when you have to do things quickly? Yes No
149. Must you do things very slowly in order to do them without mistakes? Yes No
150. Do you always get directions and orders wrong? Yes No
151. Do strange people or places make you afraid? Yes No
152. Are you scared to be alone when there are no friends near you? Yes No
153. Is it always hard for you to make up your mind? Yes No
154. Do you wish you always had someone at your side to advise you? Yes No
155. Are you considered a clumsy person? Yes No
156. Does it bother you to eat anywhere except in your own home? Yes No

N

157. Do you feel alone and sad at a party? Yes No
158. Do you usually feel unhappy and depressed? Yes No
159. Do you often cry? Yes No
160. Are you always miserable and blue? Yes No
161. Does life look entirely hopeless? Yes No
162. Do you often wish you were dead and away from it all? Yes No

O

163. Does worrying continually get you down? Yes No
164. Does worrying run in your family? Yes No
165. Does every little thing get on your nerves and wear you out? Yes No
166. Are you considered a nervous person? Yes No
167. Does nervousness run in your family? Yes No
168. Did you ever have a nervous breakdown? Yes No
169. Did anyone in your family ever have a nervous breakdown? Yes No
170. Were you ever a patient in a *mental* hospital (for your nerves)? Yes No
171. Was anyone in your family ever a patient in a *mental* hospital (for their nerves)? Yes No

P

172. Are you extremely shy or sensitive? Yes No
173. Do you come from a shy or sensitive family? Yes No
174. Are your feelings easily hurt? Yes No
175. Does criticism always upset you? Yes No
176. Are you considered a touchy person? Yes No
177. Do people usually misunderstand you? Yes No

Q

178. Do you have to be on your guard even with friends? Yes No
179. Do you always do things on sudden impulse? Yes No
180. Are you easily upset or irritated? Yes No
181. Do you go to pieces if you don't constantly control yourself? Yes No
182. Do little annoyances get on your nerves and make you angry? Yes No
183. Does it make you angry to have anyone tell you what to do? Yes No
184. Do people often annoy and irritate you? Yes No
185. Do you flare up in anger if you can't have what you want right away? Yes No
186. Do you often get into a violent rage? Yes No

R

187. Do you often shake or tremble? Yes No
188. Are you constantly keyed up and jittery? Yes No
189. Do sudden noises make you jump or shake badly? Yes No
190. Do you tremble or feel weak whenever someone shouts at you? Yes No
191. Do you become scared at sudden movements or noises at night? Yes No
192. Are you often awakened out of your sleep by frightening dreams? Yes No
193. Do frightening thoughts keep coming back in your mind? Yes No
194. Do you often become suddenly scared for no good reason? Yes No
195. Do you often break out in a cold sweat? Yes No

TEM, a nitrogen mustard-like agent, is effective, taken orally, against many leukocytic proliferative diseases.

Leukemia and Leukosarcoma

JAY H. SILVERBERG, M.D.
Montefiore Hospital, Pittsburgh

WILLIAM DAMESHEK, M.D.
Tufts College, Boston

TRIETHYLENE melamine is a versatile drug in the treatment of malignant disorders of the leukocytic tissues.

The agent is effective in Hodgkin's disease, chronic granulocytic and lymphocytic leukemia, lymphosarcoma, and reticulum-cell sarcoma. The drug's general myelosuppressive action indicates use in treatment for polycythemia vera and thrombocythemia.

Since triethylene melamine can be given orally, therapy may be administered in an outpatient department when blood counts can be done regularly. Frequent blood cell counts, including estimation of platelets, are mandatory.

The antileukemic activity of triethylene melamine, 2,4,6-triethylenimino-*s*-triazine, is attributed to the ethylenimine ring, which is similar to the active hydrolysate of nitrogen mustard. Gastrointestinal disturbances such as nausea and anorexia are commonly encountered with use of the drug, although less often and severe than those seen with nitrogen mustard.

In Hodgkin's disease, lymphosarcoma, and reticulum-cell sarcoma, Jay H. Silverberg, M.D., and William Dameshek, M.D., recommend an initial course of 15 to 20 mg. of triethylene melamine, the exact amount being determined by severity of symptoms and total leukocyte count before therapy. Doses should be given daily or every other day orally in 2.5- or 5-mg. amounts soon after the patient awakens in the morning, at least one hour before breakfast. If no beneficial effect is seen in four weeks after the last dose, another 5 to 10 mg. may be given if leukocyte count and platelet levels are normal.

Later, 2.5 mg. may be given weekly or biweekly as maintenance therapy if desired. White blood cell counts should not be permitted to drop below 5,000; at the first sign of platelet deficiency, the drug should be discontinued.

With this therapy, remissions lasting for three to over five months were observed in 30% of patients with Hodgkin's disease. Definite but incomplete improvement was noted for most of the others and was maintained up to four months.

Regression of weakness, malaise,

Use of triethylene melamine in treatment of leukemia and leukosarcoma. J.A.M.A. 148:1015-1021, 1952.

anorexia, night sweats, and fever is the most prominent subjective indication of improvement, reduction of lymph node and splenic size being apparent objectively. The rapid course of lymphosarcoma and reticulum-cell sarcoma is slowed, but not basically altered.

In chronic lymphocytic leukemia, initial amounts of 10 to 15 mg. of triethylene melamine with a maintenance dose of 2.5 mg. every five to fifteen days have provided good to excellent results. Similar results are obtained in chronic granulocytic leukemia with doses slightly larger than those used in Hodgkin's disease. Triethylene melamine has been effective in granulocytic leukemia but not for acute leukemias.

When rapid therapeutic effect is essential, as in Hodgkin's disease with mediastinal involvement causing dyspnea, intravenous nitrogen mustard therapy is preferable.

Liver Damage with Chromium Intoxication

LUKE R. PASCALE, M.D., AND ASSOCIATES

SUBTLE systemic poisoning in addition to well-known surface lesions may be a definite hazard for employees in industries using chromium.

Tissues not in direct contact with chromium compounds have been considered safe. However, acute hepatitis with jaundice was observed in a worker by Luke R. Pascale, M.D., Sheldon S. Waldstein, M.D., Gertrude Engbring, M.D., Alvin Dubin, M.S., and Paul B. Szanto, M.D., of Cook County Hospital and Loyola University, Chicago.

On screening of 8 fellow employees, toxicity without general symptoms was evident in 4. All were excreting chromium in urine and had slight to moderate hepatic damage as well as obvious irritation of nasal mucosa. Subjects had worked from one to five years in a chromium electroplating plant, where metal was immersed in chromic acid and air contained chromium trioxide.

Liver biopsy and functional tests revealed such abnormalities as centrolobular necrosis, Kupffer cell proliferation, enlarged portal fields with lymphocytic and histiocytic infiltration, bile duct proliferation, bile pigment imbibition, diminished prothrombin activity, elevated icterus index, and abnormal retention of sulfobromophthalein.

Similar hepatic changes might be overlooked in other trades associated with chromium, including printing, tanning, dyeing, photography, and aircraft and shipbuilding.

Chromium intoxication with special reference to hepatic injury. **J.A.M.A. 149:1385-1389, 1952.**

The triad of impaired sweating, low blood pressure on standing, and impotence has been reported in 37 cases.

Orthostatic Hypotension Syndrome

MARVIN ROSECAN, M.D., ROBERT J. GLASER, M.D., AND MELVIN L. GOLDMAN, M.D.
Washington University and Barnes Hospital, St. Louis

THE definite but little understood triad of anhidrosis, impotence, and orthostatic hypotension has recently been recognized.

The syndrome was first described in 1941. Reported cases now number 37, including 2 observed by Marvin Rosecan, M.D., Robert J. Glaser, M.D., and Melvin L. Goldman, M.D.

When the patient stands, systolic blood pressure abruptly falls at least 35 mm. of mercury and diastolic 20 mm. Major symptoms are weakness, vertigo, and fainting. Lesions of the central nervous system, possibly in the hypothalamus, may be responsible.

The direct cause of hypotension is failure of blood vessels to contract and heart rate to increase on shift of blood volume. Reflex tachycardia does not occur, and cardiac output may drop abnormally.

Treatment is unsatisfactory, although vasopressor drugs and measures that raise fluid volume relieve symptoms in some instances.

Male patients outnumber females in a ratio of 4 to 1, and ages vary from 39 to 72 years. First manifestations may start as early as 23 years, however.

Postural dizziness or weakness occurs in all cases and syncope in 78%. Fainting may be preceded by blurred vision and mental dullness, but seldom by nausea, pallor, or other vasoconstrictive aura. Discomfort is greatest on arising in the morning, after meals or exercise, and in warm weather.

Partial or total lack of perspiration is often limited to certain areas, sometimes to one side or the lower half of the body. Though not increased by heat, sweating can be induced by parenteral pilocarpine.

Impotence often starts suddenly between ages of 30 and 50 years. Dysfunction may be neurogenic or due to blood shunt from penile vessels. Most subjects have nocturia with scanty, concentrated daytime excretion. Incontinence, constipation, or diarrhea may develop. On physical examination, a dry, coarse, scaly skin is commonly noted.

Within a few seconds after an upright position is assumed, systolic pressure usually falls more than 50 mm. and diastolic 30 mm. or more, while pulse rate accelerates less than 10 beats per minute. Raising the feet above heart level often produces hypertension.

Abnormal pupillary reactions,

Orthostatic hypotension, anhidrosis, and impotence. Circulation 6:30-40, 1952.

reflex changes, and other signs of central nervous disorder are not rare. Adie's or Horner's syndrome, diffuse arteriosclerosis, or parkinsonism may be observed.

Results of laboratory tests are generally normal except for slight nitrogen retention. Basal metabolic rates are usually 0 to -21%.

For therapy, vasopressor drugs are given in large amounts, but the value is limited by reactions of nervousness, tremor, and insomnia. Doses of ephedrine range from 12.5 mg., early each morning, to 50 mg. every two hours. Long-acting norepinephrine, Neosynephrine, Benzedrine, or Paredrine may be used.

Fluid volume is regulated by lifting the head of the bed 20 degrees above horizontal and administration of fluid and salt. Desoxycorticosterone acetate is sometimes combined with high-salt intake and vasopressor agents, or ephedrine therapy with bandaging of the legs.

Regardless of the therapy, the course of orthostatic hypotension progresses slowly for many years. However, affected persons become adapted to the syndrome and may tolerate extremely low pressures for ten to fifteen minutes at a time. Convulsions almost never occur.

¶ INTERMITTENT CLAUDICATION symptoms may improve during treatment with Peritrate, a synthetic nitric acid ester of erythrol tetranitrate. The agent is given in doses of 10 to 30 mg. three times a day for two to twenty-four weeks. Smoking is prohibited and alcoholic beverages are allowed only in moderation. Warm baths, short-wave diathermy, wearing of warm clothing, and Buerger's postural exercises are included in the regimen. Patients with a combination of angina pectoris and angina cruris show improvement in both conditions, assert Saul S. Samuels, M.D., and Elias D. Padernacht, M.D., of the Stuyvesant Polyclinic Hospital, New York City.

Angiology 3:20-21, 1952.

¶ HEAT EXHAUSTION, especially the initial phase seen in temperate metropolitan areas, is effectively treated with a combination of 1 mg. of ergotamine tartrate and 100 mg. of caffeine. Relief is almost immediate. From experience in World War II and private practice, Joost A. M. Meerloo, M.D., of Columbia University, New York City, concludes that the syndrome is a psychosomatic failure of adjustment to heat manifested in excessive sympathetic and parasympathetic activity. The rationale of the therapy is sedation of the vaso-vegetative neurotic component and stimulation of the cortex, medulla, and spinal cord. One tablet of the preparation, Cafergot, is prescribed daily in conjunction with rest, additional salt, and fluids, especially strong hot coffee.

Am. Pract. 3:605-607, 1952.

Every diagnostic aid should be used to find the source of bleeding in gastrointestinal hemorrhage of unknown origin.

Acute Upper Gastrointestinal Hemorrhage

LT. COL. EDDY D. PALMER, M.D.
Walter Reed Army Hospital, Washington, D. C.

PATIENTS with acute gastrointestinal hemorrhage of unknown origin should be examined for the bleeding site immediately upon hospitalization by successive esophagoscopic, gastroscopic, and contrast fluoroscopic studies. The procedure may seem vigorous, but the proportion of diagnostic failures is reduced appreciably without apparent detrimental effect to the patient.

The tendency to treat patients with upper gastrointestinal hemorrhage by nonspecific supportive measures and depend on spontaneous cessation should be condemned. The dangers of adequate examination are insignificant when compared to the hazards of treatment without a knowledge of the type of lesion.

In reviewing 121 cases of sudden, severe upper gastrointestinal hemorrhage among Army men and women, Lt. Col. Eddy D. Palmer, M.C., remarks that all were diagnostic problems because the Army does not generally retain persons known to have diseases leading to such bleeding episodes. None of the patients had previously had any gastrointestinal symptom and could give no information to suggest the source of bleeding. The following proved a good routine approach in diagnosis:

After immediate preparation for blood replacement, as complete a history and physical examination as the patient's condition permits are completed, and prolonged ice-water lavage is done. Then, if the patient's state does not entirely preclude manipulation, esophagoscopic and gastroscopic examinations are immediately performed on the ward. If the diagnosis is not yet established, lavage is repeated the next morning and contrast fluoroscopic study is made, while supportive and replacement therapy is continued.

Esophagoscopic examination was done at some time during the first week of hospitalization, usually during the first few hours, for 66 of the 121 patients, gastroscopic for 112, and roentgenographic for 120. A positive diagnosis was established thereby for 94 patients in the first week, and repeated studies eventually permitted a specific diagnosis in 10 more. In only 3 cases examined by all three methods was the site of bleeding not discovered during the first week.

Observations on the vigorous diagnostic approach to severe upper gastrointestinal hemorrhage. Ann. Int. Med. 36:1484-1491, 1952.

As a result of early diagnosis, prompt surgery was done for 19 bleeding lesions, and only 5 of the patients died as a result of hemorrhage.

Proportions of the various diseases responsible for the hemorrhages in the Army group differ considerably from those in patients with previous gastrointestinal histories. Duodenal ulcer was the accountable disease in only 24%, whereas chronic hypertrophic gastritis and acute erosive gastritis were causative in 22%.

Only 7 cases, all Mallory-Weiss syndrome, could be diagnosed on clinical grounds alone. Physical examination gave no more than a suggestion of a possible bleeding site in any case.

The diagnostic manipulations did not aggravate any patient's condition.

Pernicious Anemia and Cerebral Disorder

DONALD C. SAMSON, M.D., SCOTT N. SWISHER, M.D.,
RICHARD M. CHRISTIAN, M.D., AND GEORGE L. ENGEL, M.D.

DISTURBANCE of cerebral metabolism, with delirium, is probably as common in pernicious anemia as is the well-recognized spinal cord degeneration. The delirium is reversible with vitamin B_{12} therapy in most cases, find Donald C. Samson, M.D., of the State University of New York, Syracuse, and Scott N. Swisher, M.D., Richard M. Christian, M.D., and George L. Engel, M.D., of Strong Memorial Hospital and the University of Rochester, N. Y.

The improvement appears soon after vitamin B_{12} treatment is started and may continue as long as fifteen months. The psychologic and electroencephalographic signs of improvement occur before any significant rise in the red blood cell count, indicating that the antianemia factor directly affects cerebral metabolic function.

The delirium associated with pernicious anemia may be manifest obviously through gross disorientation as to time, place, and person and by memory loss and clouding of consciousness. Often the condition can be detected only by specific testing of attention, memory, and capacity for abstract thinking. The most valuable single test is the serial subtraction of numbers such as 3 from 100. The electroencephalogram reflects dysfunction by a preponderance of slow waves.

Although the symptoms of delirium improve, the underlying character structure is not altered by administration of the vitamin. The electroencephalogram is useful for observing the course of therapy.

Cerebral metabolic disturbance and delirium in pernicious anemia. Arch. Int. Med. 90:4-14, 1952.

Hazards of ACTH or cortisone in arthritis must be weighed against the chances of diminishing invalidism.

Hyperadrenalism for Rheumatoid Arthritis

CHARLES RAGAN, M.D., FELIX DEMARTINI, M.D.,
RONALD LAMONT-HAVERS, M.D., RALPH A. JESSAR, M.D.,
DE GUISE VAILLANCOURT, M.D., AND ALBERT W. GROKOEST, M.D.
Presbyterian Hospital and Columbia University, New York City

THE greatest usefulness of ACTH and cortisone treatment for rheumatoid arthritis appears to be for the early case with poor prognosis.

The progress of disease is definitely retarded. Although slight deformities and bone lesions continue to develop, daily activities can be carried on, and confinement to bed or chair may be prevented for years.

Effects of hormones in less serious cases, which may do well under any form of therapy, cannot be determined fairly. Invalids in the advanced stage are made more comfortable by hyperadrenalism but are not returned to a full life, and only time can tell whether benefits are worth the risks in such cases.

Therapy of rheumatoid arthritis is a problem for several reasons. Etiology is unknown, so that the condition cannot be reproduced in experimental animals. Moreover, the course is variable and influenced by obscure factors.

Either gold therapy or sanitarium care is effective temporarily. Chrysotherapy will maintain only short remissions. Bed rest, though effects are less dangerous and more lasting, is not generally available for the large groups who might recover without treatment.

Two of many measures recommended, terramycin in small doses and induced hyperadrenalism, were employed by Charles Ragan, M.D., Felix Demartini, M.D., Ronald Lamont-Havers, M.D., Ralph A. Jessar, M.D., deGuise Vaillancourt, M.D., and Albert W. Grokoest, M.D. The antibiotic produced significant change in only 1 of 25 cases and partial relief in 2.

Cortisone and ACTH were more successful. In a series of 59 cases, the majority classed as severe by Steinbrocker's criteria, treatment has continued seven to thirty months, with an average of ten to twelve months.

Symptoms persisted to some extent, and a few courses were abandoned because of poor response or adverse reactions. By and large, however, ability to work improved, and some individuals had no side effects.

Sustained hyperadrenalism is not

A critical appraisal of current therapy in rheumatoid arthritis, with special reference to ACTH and cortisone. Bull. New York Acad. Med. 28:493-506, 1952.

true replacement therapy but merely one pathologic state that modifies another. Symptoms and signs during therapy are like those of Cushing's syndrome, although hypertension resulting from medication is not emphasized.

But after several months of cortisone or ACTH, blood pressure tends to rise. Cushing's syndrome is usually fatal within five years.

To avert serious consequences, adrenal stimulation should be limited by suboptimal dosage. For slight degrees of arthritis, the daily oral ration is less than 75 mg. More is required in severe cases, and often larger amounts are needed in the home or work environment than in the hospital.

The early severe conditions apparently most suitable for treatment may be detected by several clues: rapid progress of arthritis, early appearance of deformity, no response to a short term of bed rest and salicylates, positive agglutination reactions against hemolytic streptococci, and positive sensitized sheep cell agglutination.

For longstanding severe disease, after at least a year of invalidism in bed or wheelchair, the average dose is 100 mg. per day injected intramuscularly. The amount is above safe levels, yet the only benefits are antiphlogistic.

Cortisone as an adjunct to orthopedic surgery helps increase movement of deformed joints in some cases but not in others.

The two hormones are equally effective. Oral cortisone is the most convenient form but effects are more transitory and less reliable than with injections. Long-acting ACTH, effective for twenty-four to thirty-six hours, is harder for the patient to administer at home than aqueous ACTH taken every eight to twelve hours.

During medication, incised skin wounds heal if the sutures are left in place three or four days longer than usual. Open granulating wounds fill in slowly but entirely.

In a critical situation, sudden withdrawal of cortisone with even transient adrenal atrophy is hazardous. Before discontinuance, 25 mg. of ACTH should be given daily by vein in slow infusion for two or three days.

Side effects vary from minor injection abscesses to death. Appetites often become voracious, and weight gain not related to water retention may be impossible to control outside the hospital.

Treatment often is continued regardless of peptic ulcer, new or recurrent, or development of slight hypertension, hyperglycemia, ecchymosis, acne, or amenorrhea. Therapy may be halted and resumed after attacks of furunculosis or abscess, pneumonia, cholecystitis, or cerebrovascular accident followed by recovery.

Hormones are given up entirely because of complications such as blurring of vision and mental confusion, suicidal tendencies, congestive heart failure, tuberculosis, or thrombophlebitis with pulmonary infarction.

Hyperadrenalism can be maintained in some people for a year or more without untoward results, yet as time goes on the number

with satisfactory control becomes fewer. At least two or three additional years of observation are necessary for true evaluation.

At present, the crying needs in the management of rheumatoid arthritis are understanding of pathogenesis and more definite criteria to indicate prognosis soon after onset.

Cancer of the Rectum and Rectosigmoid

FREDERICK A. COLLER, M.D., RICHARD H. LILLIE, M.D.,
MILTON F. BRYANT, JR., M.D., AND WILLIAM E. BROWN III, M.D.

MORTALITY of rectal and rectosigmoid cancer could be greatly reduced by earlier diagnosis. Polyps, which are actually or potentially malignant, should be sought with special care.

Lesions in the lower rectum should be removed by no less radical procedure than combined abdominoperineal resection. To prevent distress, even palliative operations on low tumors should consist of resection rather than colostomy alone. A few higher cancers in the incurable stage can be excised without performing a colostomy.

Frederick A. Coller, M.D., Milton F. Bryant, Jr., M.D., and William E. Brown III, M.D., of the University of Michigan, Ann Arbor, and Richard H. Lillie, M.D., of Milwaukee reviewed 1,064 cases between 1935 and 1945. Observation continued five to fifteen years.

Procedures included 543 abdominoperineal resections, 111 anterior or obstructive resections, 238 colostomies with no other operation, 27 local excisions, and 23 laparotomies. In other cases surgery was contraindicated, refused, or done elsewhere.

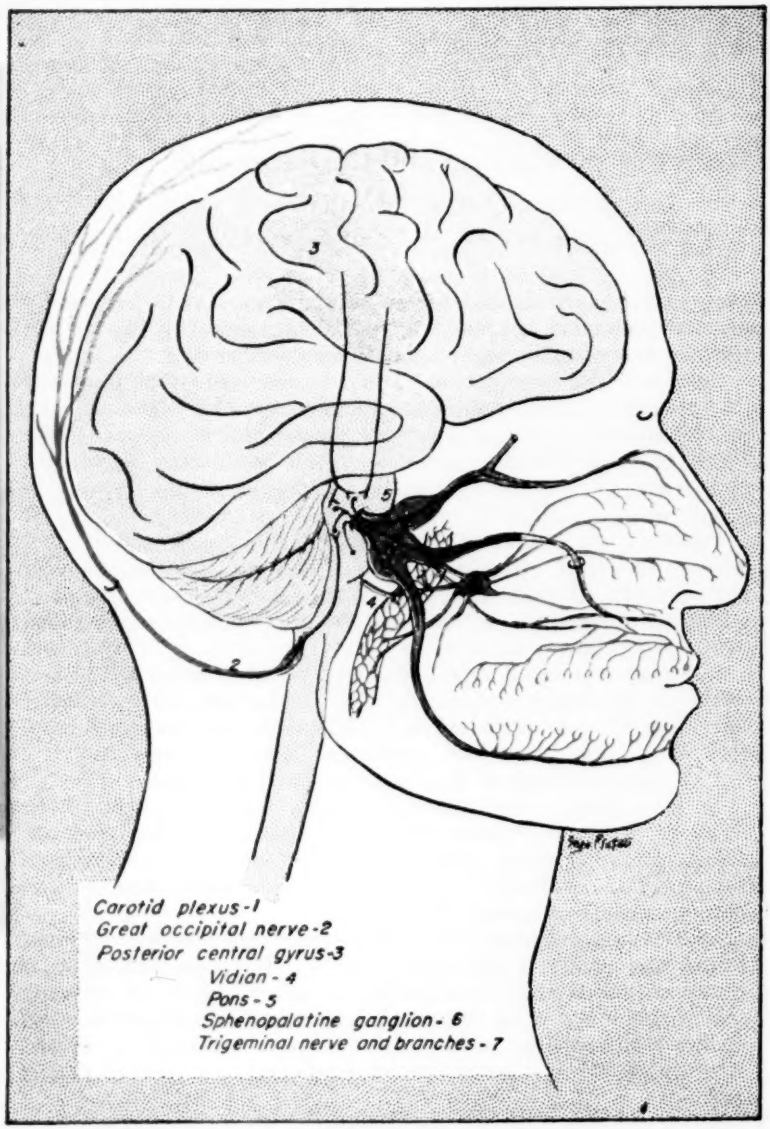
Less than one-third of all patients survived five years.

In many cases, hemorrhoidectomy or other surgery had been done elsewhere and cancer overlooked until return of symptoms shortly after operation. Perhaps 20% of tumors could have been found weeks or months earlier by routine sigmoidoscopy and barium enema radiography.

In 29 cases, combined abdominoperineal resection was followed by recurrence five to ten years later. Of the group with anterior resection, which was done chiefly for upper rectal and rectosigmoid carcinoma, none died of recurrence after the fifth year. Evidently, neoplasms of the lower rectum were able to spread laterally and remain unnoticed for many years, in spite of radical technic.

Cancer of the rectum. A study of long-term survival. Ann. Surg. 135:841-852, 1952.

Sensory Nerve Supply of Nose and Sinuses



So-called sinus headache should be distinguished from pains of nasal origin to avoid unnecessary treatment.

Head Pain of Sinus Origin

HAROLD OWENS, M.D.
University of California, Los Angeles

EVEN when a postnasal discharge accompanies head and face pain, sinusitis is much less often the cause than is generally assumed. The headache may be closely associated with objective evidence of sinus disease and lead to much unnecessary treatment.

As an example, Harold Owens, M.D., cites vasomotor instability, which can simultaneously produce changes in the mucous membranes of nose and sinuses and circulatory changes in the central and peripheral nervous systems.

Examination of the sensory nerve supply of the nose and sinuses, the trigeminal nerve, reveals why irritation of this nerve may yield pain referred to the head, eyes, teeth, jaw, neck, and occipital region and why symptoms of sinus disease are confused with those of other causes.

Typical sinus pain is constant or periodic, sharply localized, deep, dull aching, and nonpulsating. The intensity is low in chronic sinusitis and seldom very severe. Aspirin or codeine affords considerable, if not complete, relief.

Headaches are less frequent at night and when the patient has been lying down for a long time; the headaches appear in the morning and may regress during the day, but not always. If the disease is of sufficient duration and intensity, pain is felt commonly in head, neck, and shoulders.

The headache is aggravated by stooping, exertion, sudden movement of the head, sneezing, or coughing, and by states that increase the engorgement of the mucosa, such as anxiety, resentment, cold air, menstruation, and alcohol.

Tremendous individual variations exist, so that a blocked, pus-filled sinus will cause one patient little or no discomfort and another extreme pain. Also, a patient with a nose completely blocked by polyps may have no real pain, whereas another with slight intumescent obstruction complains bitterly.

Acute *maxillary sinusitis* produces local discomfort and pain referred to cheek, upper jaw, upper teeth, and frontal area.

Headache, the most frequent symptom of acute *frontal sinusitis*, may produce nausea, is often throbbing in character, and is situated in the supraorbital region, the eye, or the root of the nose or may include half the head.

Acute *anterior ethmoid disease* causes pain at the root of the nose and inner angle of the eye, and involvement of the posterior cells

Head and face pain of sinus origin. Ann. Otol., Rhin. & Laryng. 61:435-440, 1952.

may refer to the temporal region, front teeth, and occasionally to the parietal and occipital regions.

Acute *sphenoiditis* is associated with deep pain behind the eyes, deep in the head, over the vertex, and occasionally into the mastoid area.

The headaches of chronic sinusitis, compared with the acute, are harder to define, general, less constant, and assume typical distributions only during exacerbations.

The mucosa of the nose is much more sensitive to stimulation than is that of the sinus. A stimulus which will produce slight pain in the sinus will produce severe pain on the nasal mucosa.

Reflex engorgement of the nasal turbinates and of the ostia of the sinuses can produce severe pain. When so engorged, these membranes are also especially sensitive.

That nasal obstruction with pressure on nasal structures is a more important cause of pain than is changing pressure within the sinus may explain the relief afforded by vasoconstricting nose drops which have done little to improve drainage of a sinus.

Control of Posttonsillectomy Pain

S. E. PENN, M.D.

THE usual after effects of tonsillectomy—pain, difficulty in swallowing, and earache—may be controlled by injection of a solution of procaine and butylaminobenzoate in a nontoxic, water-miscible, organic solvent.

This solution, Efocaine, provides local anesthesia lasting for approximately five to six days, states S. E. Penn, M.D., of Montefiore Hospital, Pittsburgh. Postoperative morbidity is greatly decreased and wound repair is not adversely affected. Although the patient is able to swallow freely, a soft diet must be used to avoid trauma.

The mechanism of activity is based on the fact that insoluble, slowly absorbed materials exert an effect for prolonged periods. The solution is at critical saturation limits, hence when diluted by even small quantities of aqueous fluid, such as extracellular fluid or serum, a complete deposition of the crystalline anesthetic occurs; the crystallization creates an anesthetic depot which slowly and continuously releases the drug over an extended period.

Injections of 1 to 1.55 cc. are made submucosally at various points about both tonsillar pillars, care being taken not to deposit the solution too superficially.

In 45 consecutive patients so treated, usual posttonsillectomy pain did not occur; local soreness was felt by some after five days.

Control of post-tonsillectomy pain. Arch. Otolaryng. 56:59-60, 1952.

Radical subtotal thyroidectomy, after an euthyroid state is induced, is the best therapy for hyperthyroidism.

Recurrent Hyperthyroidism

WILLARD BARTLETT, JR., M.D.
St. Louis University, St. Louis

THE fault of leaving too much goitrous or potentially goitrous tissue at surgery is the only cause of postoperative hyperthyroidism. Radical subtotal thyroidectomy will give virtually complete and permanent cure of hyperthyroidism.

Permanent good results cannot be anticipated from partial thyroidectomy, which leaves from one-eighth to one-third of each lobe, states William Bartlett, Jr., M.D. Distrust of partial thyroidectomy as adequate therapy is shown by present trends toward total thyroidectomy, the vain use of the thiourea derivatives as definitive treatment, and condemnation of any surgical procedure for inducing remission.

Radioactive iodine is slow in action, usually ineffective for nodular goiter, and almost useless in carcinoma of the thyroid. Employment of the material is still experimental, since possible tendency to cause cancer of the thyroid has not yet been well evaluated.

Radical, truly subtotal thyroidectomy, leaving 1 gm. or less of goitrous tissue in each lobe, is focused not on the quantity of tissue removed, but on the amount of toxic goiter to be left. The tissue remaining is about the smallest quantity that can be left in the tracheoesophageal groove and as a lining for a generous portion of lateral capsule. The operation is especially effective in cases of toxic goiter, particularly of exophthalmic individuals, when done as soon as the euthyroid state can be induced. The mortality rate is quite low.

Postoperatively, the euthyroid state must be maintained by daily thyroid feedings for life, save in the exceptional case. Observations at appropriate intervals are essential. The proper thyroid dosage will prevent postoperative increase in proptosis and development of orbital edema. Hypothyroidism should not be regarded as a complication of thyroidectomy except when the state is permitted to appear or to persist because of neglect by the patient or physician.

The technical fault in the two-stage operation for diffuse hyperplastic goiter lies in the practice of opening the deep layers of the neck on the side of lobectomy, rather than in the midline, in order to avoid the site of future or previous operation, as the case may be. Occasionally, visualization of the isthmus and the tissues immediately adjacent to the trachea is incomplete; tissue is found at such sites

The avoidance of recurrent hyperthyroidism. J. Missouri M. A. 49:667-670, 1952.

at the second operation. Now that thiourea compounds are available, the two-stage operation is almost obsolete for poor surgical risks.

Poor results may appear after conservative, inadequate bilateral subtotal operations.

Failures of cure after primary operation for toxic nodular goiter represent improper assay of the situation. Single lobectomy for an apparently unilateral adenoma is inadequate; radical subtotal thyroidectomy should regularly be done. Failure to recognize an intrathoracic thyroid component or to remove the pyramidal lobe may cause hyperthyroidism to persist.

Fatal Poisoning by a Cationic Detergent

LESTER ADELSON, M.D., AND IRVING SUNSHINE, PH.D.

THE synthetic detergents used in medicine and industry as antiseptics or cleaning and wetting agents are rapidly effective against microorganisms at high dilutions and are relatively nontoxic to human beings in amounts likely to be ingested. However, a death from swallowing 10% Hyamine 2389 solution, a cationic detergent of the quaternary ammonium compound type, unintentionally used instead of ginger ale with a whisky drink, has recently been reported.

Inhibition of essential enzymatic reactions concerned with nervous function and intracellular oxidation was probably the mechanism of death, explain Lester Adelson, M.D., and Irving Sunshine, Ph.D., of the Cuyahoga County Coroner's Office and Western Reserve University, Cleveland. The synthetic detergents produce diverse effects on biologic materials and systems, causing the precipitation and destruction of proteins, inactivation of viruses, enzymes, and toxins, and also hemolysis and bacteriostasis. The wide range of activity causes serious toxic phenomena after absorption by higher animals. Alcohol potentiates the lethal effect.

The victim consumed only an ounce of the mixture before feeling ill and vomiting. The patient soon became apprehensive and restless, with a rapid pulse. Disorientation and incoherence followed with labored respirations and deep cyanosis and dilatation of the pupils. Generalized twitching developed terminally.

Advisable therapeutic measures are emesis, gastric lavage, and oxygen inhalations. In addition, since the detergents combine with protein, the feeding of egg white or milk may be useful. Atropine in doses of 2 mg. per hour should be used on the basis of hyperstimulation of the parasympathetic nervous system by the synthetic detergents.

Fatal poisoning due to a cationic detergent of the quaternary ammonium compound type. Am. J. Clin. Path. 22:656-661, 1952.

Surgical treatment is sometimes effective for the more common derangements of the adrenal glands.

Surgery of the Adrenal Gland

DAVID STATE, M.D.
University of Minnesota, Minneapolis

MANIFESTATIONS of adrenal disease can often be correlated with altered secretion of one or more of the suprarenal hormones, permitting a rational approach to the surgical treatment of such conditions.

Adrenalin is released by the medulla as an emergency function. Cortical hormones aid in maintenance of electrolyte and water balance, influence the carbohydrate metabolism, and augment protein anabolism.

Neuroblastomas, the most common intraabdominal neoplasm in children under 4, arise from the nerve cells of the medulla or from other sympathetic nerve tissues along the retroperitoneal, retropleural, or even cervical areas. Metastases occur readily in the lung, liver, brain, or skeletal system and may be the earliest indication of the tumor. The onset is usually related to abdominal swelling associated with increasing fatigue, loss of appetite, and pain suggestive of retroperitoneal nerve involvement or invasion and obstruction of the urinary tract.

Excision of the mass is rarely possible, according to David State, M.D. Radiation therapy should be given to the abdominal mass and to sites where metastases have appeared. The prognosis is poor.

Pheochromocytomas arise from the chromaffin cells of the medulla and cause paroxysmal arterial hypertension, tachycardia, or tremor, nausea, vomiting, and sweating. A fall in blood pressure from sympatholytic drugs, such as Dibenamine or benzodioxane, usually constitutes a diagnostic test.

Surgical excision is fraught with some danger. Tumor manipulation is followed by a pronounced elevation in blood pressure; a precipitous fall occurs after tumor removal.

Neoplasms or hyperplasia of the adrenal cortex cause hyperadrenocorticism, which is manifested as an adrenogenital syndrome or as Cushing's syndrome.

Congenital adrenal hyperplasia in the female, female pseudohermaphrodism, is the most common adrenal disorder encountered in childhood. At birth, ovaries, fallopian tubes, and a uterus are present, together with an enlarged clitoris, hypertrophied labia majora, and a urogenital sinus. From birth on, the infants continue to show evidence of increased androgen secretion and become adults with

Surgery of tumors and hyperfunctioning states of the adrenal glands. Surgery 32:134-158, 1952.

short, stocky, muscular bodies and coarse, dark hair on the thighs, legs, abdomen, and face.

Hyperplasia is usually bilateral, but removal of one adrenal or portions of both results in no significant clinical change. Cortisone may possibly depress the excessive androgenic function. Multiple plastic procedures are necessary to convert the individual to either sex, and sex hormones are used at puberty to promote development in the direction of the sex decided upon.

Pseudohermaphrodism in the female must be distinguished from intersexuality, postnatal virilization, and sexual precocity of the isosexual type.

Congenital adrenal hyperplasia in the male may not have any influence on the external genitalia until the child reaches 1½ to 3 years of age. The penis and prostate may attain adult size at an early age, but the testes remain small and immature. The voice becomes deep and secondary sex characteristics develop early. Somatic growth is accelerated, but epiphyseal fusion occurs early.

The condition must be distinguished from virilizing adrenal tumors, the neurogenic and constitutional types of sexual precocity, and interstitial cell tumors of the testes.

Excision of the enlarged adrenal apparently does not influence the course of the disease. Cortisone may delay the early epiphyseal fusion.

In both males and females with congenital adrenal hyperplasia, crises similar to those with Addison's disease may be encountered. Treatment consists of intravenous salt and glucose solutions and whole adrenal cortical extract. Maintenance doses of desoxycorticosterone may be required after the episode subsides, although a high-salt intake is sometimes satisfactory.

Cushing's syndrome is due to excessive production of adrenal cortical hormones, caused by a primary disorder in the hypothalamus, pituitary, or adrenal. Fat deposition about the shoulders and face, weakness, osteoporosis, hypertension, virilization of the female, diabetic sugar curve, and increased capillary fragility are noted. In children, evidences of sexual precocity appear but are not as pronounced as with congenital adrenal hyperplasia.

Removal of an adrenal tumor causing the syndrome brings reversion to normal. However, if the condition is the result of adrenal hyperplasia, surgical treatment is not always satisfactory.

Scout films of the abdomen, planigrams, and pyelograms are helpful in revealing nonpalpable adrenal tumors. Preoperatively, latent adrenal insufficiency should be looked for by a test injection of ACTH followed by eosinophil counts. Intravenous salt and glucose solutions and intramuscular cortin before surgery aid in preventing acute adrenal insufficiency.

Pentothal Sodium–curare mixtures with intratracheal oxygen are used for anesthesia. For good exposure and to avoid excessive manipulation, the adrenal is best ap-

proached transperitoneally. If the opposite adrenal is atrophic or absent, a portion of the involved gland should be left, when possible.

Acute insufficiency is treated with intravenous fluids and blood. Adrenocortical extract is given intravenously and intramuscularly, and repeated in twenty to thirty minutes if no response occurs. During the first twenty-four hours, intramuscular injections of adrenocortical extract should be given every three hours, and intravenous solutions continued. Adrenalin intravenously aids in combating hypotension. Favorable response to therapy is manifested by return of the pulse and blood pressure to normal levels, restoration of weight loss, correction of hypoglycemia, and return to normal of the serum electrolyte pattern. Treatment with adrenocortical extract should be continued two or three days, then gradually decreased.

Kerosene Intoxication

ROBERT B. OLSTAD, M.D., AND ROBERT M. LORD, JR., M.D.

A LEAKING kerosene stove is a frequent source of poison for small children. The child may swallow the kerosene from a cup or other receptacle placed on the floor to catch the drip from a defective fuel line or air vent of the fuel reservoir.

The most serious toxic complication is pneumonia, find Robert B. Olstad, M.D., and Robert M. Lord, Jr., M.D.

At the Rhode Island Hospital, Providence, 71 cases were observed in ten years; 325 other cases have been reported in the literature. Mortality is nearly 5%.

The first reaction is coughing, gagging, or strangling. Kerosene may be aspirated or absorbed into the lungs and, having low volatility, is likely to remain. About half the patients vomit, and nearly 40% have central nervous symptoms such as drowsiness, stupor, or convulsions. The majority are feverish for a few days, and renal involvement may be evidenced by proteinuria, glycosuria, or both.

On entry to the hospital, the child's stomach should be washed out with large amounts of water or saline solution. High colonic enemas and saline cathartics may be helpful.

Roentgenograms of the lungs are made on admission and on the fourth day, since pneumonia may develop without physical signs.

If necessary, symptomatic treatment is given for fever, and depot penicillin is usually injected twice daily. Sedation or oxygen may be required, but no stimulants are employed for lethargy. The average hospital stay is five and a half days.

Kerosene intoxication. Am. J. Dis. Child. 83:446-453, 1952.

¶ PLASTIC TUBE FEEDING of infants and older children is becoming popular but the sharp end of the tube endangers mucous membranes and has even resulted in gastric perforation. For safety, Hans W. Kunz, M.D., of New York University, New York City, tips polyethylene catheters with paraffin. Paraffin with a melting point of 60 to 62° C. is liquefied by heating on a glass slide. The tip of the tube, which contains 2 holes 0.5 to 1 cm. from the end, after being smoothed with a drill or emery board, is dipped in the wax two or three times without touching the slide, to form a perfectly smooth round protective stub.

J. Pediat. 41:84-85, 1952.

Tube Feeding of Premature Infants

E. A. WAGNER, M.D., D. V. JONES, M.D.,
C. A. KOCH, M.D., AND G. D. SMITH, M.D.

UNUSUALLY small premature babies are easily and quickly fed by gavage with an indwelling polyethylene tube inserted through the nose.

The outer end is closed with a needle. The food mixture is injected by syringe in the amount and at the frequency desired. Meals may be given by relatively inexperienced personnel.

E. A. Wagner, M.D., D. V. Jones, M.D., C. A. Koch, M.D., and G. D. Smith, M.D., of Cincinnati General Hospital and the University of Cincinnati devised the method particularly for infants weighing less than 3 lb. at birth. Larger children with poor sucking reflex, harelip, or other impediments are also benefited.

Tubing is P.E. No. 90 type, with an 0.05-in. outer diameter and 0.034-in. lumen. Distance from the infant's glabella to tip of the ensiform cartilage is marked on the tube with India ink, and the catheter is passed gently through the nares to the mark, leaving about 8 in. outside.

The distal portion is taped to nose, cheek, and forehead. An 18- or 19-gauge intravenous cannula or spinal needle fills the lumen. Needle bevels and burred tips should be filed off, and cut ends of plastic smoothed. The tube is sterilized before insertion.

A standard low-fat formula contains 1 oz. of Dryco, 7½ oz. of water, and ½ oz. of Karo. Fluid is injected slowly with a 10- or 20-cc. Luer-Lok syringe, generally every two or three hours. The tube becomes worn and usually is replaced with another in five to seven days.

Polyethylene tube feeding in premature infants. J. Pediat. 41:79-83, 1952.

Salient problem of pericarditis in children is differentiation between rheumatic and acute benign types.

Acute Benign Pericarditis in Childhood

SIDNEY FRIEDMAN, M.D., RACHEL ASH, M.D.,
T. N. HARRIS, M.D., AND HENRY F. LEE, M.D.
University of Pennsylvania, Philadelphia

CHILDREN as well as adults may have primary nonsuppurative nonfatal inflammation of the pericardium, with chest pain and fever.

Involvement may be preceded by respiratory infection but should not be confused with rheumatic pericarditis. In 6 cases of benign and 8 of rheumatic disease, obvious differences were noted by Sidney Friedman, M.D., Rachel Ash, M.D., T. N. Harris, M.D., and Henry F. Lee, M.D.

Of particular importance is the fact that cortisone and ACTH may be quite helpful in primary pericarditis, which is transient and self-limited, tiding the patient over until the natural termination of the disease, but are less promising for rheumatic heart disease.

Most acute benign attacks apparently occur in the later half of childhood; none of the 6 children was under 3 years old. Etiology is obscure, with some manifestations indicating allergic and others infectious origin. A respiratory condition such as sore throat is associated in many but not all instances.

Children who are old enough to report symptoms may describe precordial pain. A pericardial friction rub, often unnoticed for the first few days, is usually audible at the peak of illness.

During the same period, temperature may be 101.1 to 104° F. Patients are usually irritable, anorexic, toxic, and have general malaise. The heart is often enlarged, and signs of early congestive failure may appear. Classic electrocardiographic changes associated with pericarditis are frequently observed, such as S-T segment elevation and inversion of T waves.

Diffuse pain suggesting widespread myositis is generally felt in the extremities but is not arthritic, and the joints do not become red, hot, tender, or swollen. The erythrocyte sedimentation rate is usually high. White blood cell counts on admission to the hospital may vary between 5,000 and 34,000, with differential counts showing only a slight shift to the left.

Either ACTH or cortisone produces great improvement within forty-eight hours. The temperature drops while pain, malaise, anorexia, and general toxicity are replaced by good appetite and a feeling of well-being which sometimes borders on euphoria. The sedimenta-

Acute benign pericarditis in childhood: comparisons with rheumatic pericarditis, and therapeutic effects of ACTH and cortisone. Pediatrics 9:551-564, 1952.

tion rate is usually normal within seven to ten days.

Cardiac response is less satisfactory. Although pulse rate is slowed and congestive failure decreased, enlargement will persist for several weeks.

In the patients observed, electrocardiographic configuration was normal about one month after onset of disease. As with adults, benign involvement lasted three weeks to three months. Few traces of heart disorder could be found after observation periods of ten months to almost two years.

Children with rheumatic pericarditis differ from those with acute benign pericarditis chiefly in having major or minor criteria for diagnosis of rheumatic fever and cardiac murmurs during and frequently after the acute attack. The heart may remain enlarged, and disease is at times fatal. Common types of murmur are apical blowing systolic, apical diastolic, and aortic parasternal diastolic. Jones's diagnostic criteria often noted are migrating polyarthritis, epistaxis, and previous rheumatic attacks.

In the children with benign pericarditis no murmurs were observed, no major criteria of rheumatic fever, and only a rare minor symptom such as nosebleed.

Serologic evidence is also useful. Titers of the antistreptococcal antibodies, antistreptolysin O and antihyaluronidase, were not high enough to be within the rheumatic fever range during benign inflammation.

¶ VULVOVAGINITIS IN CHILDREN may be effectively treated with child-sized vaginal suppositories containing 300,000 units of penicillin each. Claude C. McLean, M.D., of Birmingham observed apparent cure in 6 of 8 cases, the vaginal smears after one week of therapy showing predominance of epithelial over pus cells and disappearance of gram-negative intracellular organisms. The suppositories are inserted on the following schedule: 1 every night and morning for three days; 1 nightly for three nights; 1 every third night for three nights; and 1 every seven days for three weeks. The patient is kept in bed the first three days.

South. M. J. 45:741, 1952.

¶ ANEMIA IN PREMATURE INFANTS may be ameliorated more effectively by molybdenized ferrous sulfate than by iron and ammonium citrates. A. H. Tuttle, M.D., and James N. Etteldorf, M.D., of the University of Tennessee and John Gaston Hospital, Memphis, report that 20 mg. of iron daily is better tolerated as 1 cc. of Mol-Iron Liquid twice a day than as a citrate solution in the same dosage. Infants receiving either preparation progressed better than a control group receiving no iron therapy.

J. Pediat. 41:170-175, 1952.

Palindromic unilateral renal purpura may explain some cases of cryptogenic bleeding from the kidney.

Palindromic Unilateral Renal Purpura

EARL F. NATION, M.D., E. M. BUTT, M.D., BEN D. MASSEY, M.D., AND CHARLES A. GALLUP, M.D.

St. Luke Hospital, Pasadena, and Los Angeles County Hospital and University of Southern California, Los Angeles

RECURRENT unilateral renal hematuria without apparent cause, pyelographic change, or gross external renal disease may indicate palindromic unilateral renal purpura. Though etiology and pathogenesis of the condition are unknown, an allergic basis seems likely.

Diagnosis of the condition is still a matter of histopathology, explain Earl F. Nation, M.D., E. M. Butt, M.D., Ben D. Massey, M.D., and Charles A. Gallup, M.D., who describe 6 cases for which the term palindromic unilateral renal purpura is proposed. The condition is probably identical with most of the cases hitherto referred to as chronic hemorrhagic papillitis and true essential hematuria. In each of the 6 cases, nephrectomy or nephroureterectomy was performed, usually because hematuria was prolonged and severe enough to endanger the patient's life.

Histologic examination of the removed kidney revealed essentially submucosal hemorrhage and lymphocyte and eosinophil infiltration, bleeding into glomerular spaces and tubules, pigmentation of the tubular epithelium, and cortical scarring. Small amounts of hemosiderin were found in the tubular epithelium in all cases.

The disease is not confined to the papillae but involves the entire kidney, particularly the pelvis. Hemorrhage results from vascular changes with reversible alterations of unknown type in the walls of the smaller vascular radicles, so that whole blood escapes from the vascular bed.

The eosinophilic infiltration indicates possibility of an allergic origin of the lesion. The eosinophil is active in allergy and is the probable vehicle for the histamine which produces allergic response.

The fact that in animals one kidney could be spared glomerulonephritis by clamping the artery for ten minutes after injection of a pathogenic mixture of killed streptoccoci and ground kidney may be of significance with respect to the unilateral nature of renal purpura.

Treatment consisting of blood transfusions, sulfonamides and antibiotics, vitamin K, and brief periods of antihistamine dosage was

Palindromic unilateral renal purpura: an explanation for renal hematuria of obscure origin. J. Urol. 68:74-87, 1952.

not curative. Adrenocorticotropic hormone is suggested as worth trying; Moccasin venom has been reported as beneficial for essential hematuria and hence might be useful in this syndrome. Silver nitrate irrigations to the renal pelvis, tried in some cases, were only temporarily beneficial, as was vitamin C therapy.

Early Cancer of the Uterus

OLIN S. COFER, M.D., AND ALBERT L. EVANS, M.D.

THE curability rate of uterine cancer, notwithstanding improved methods in surgery and irradiation therapy, is pitifully low. A partial solution of the problem is the early correction of lesions which predispose to the development of malignant growth.

After the childbearing period, women who have benign disease of the genital organs, such as cervicitis, prolapse, fibroids, cystocele, rectocele, or severe functional disorder, should have hysterectomies rather than conservative plastic operations, believe Olin S. Cofer, M.D., and Albert L. Evans, M.D., of Emory University, Atlanta. Most authorities concede that injuries of the birth canal are conducive to the growth of cancer.

A series of 746 vaginal hysterectomies done for benign lesions revealed a much higher incidence of early cancer than statistical studies of the literature would indicate. Though cancer was not known to exist preoperatively in any instance, pathologic examination of the removed specimens revealed 30 cases of early carcinoma of the cervix or endometrium and 1 of leiomyosarcoma. Only 1 of the 744 who have been observed has shown evidence of recurrence of malignancy, emphasizing the desirability of treatment at an early stage of growth.

Subtotal hysterectomy is dangerous in that cervical cancer develops in about 2% of the retained cervices; malignant disease in this situation bears a grave prognosis, and few survive for five years or more.

Vaginal hysterectomy carries a low mortality rate and the well-being of a middle-aged or elderly female is not affected by the removal of the uterus, if the ovaries are preserved. The procedure, of course, is not advised for all women above the age of 40 or 45 in order to avoid cancer, but only when extensive plastic operations are necessary. The usual objections to vaginal hysterectomy—shortened vagina, dyspareunia, frigidity, prolapse, and recurrence of cystocele and rectocele—are rare occurrences.

Incidence of early malignancy in uteri removed for benign conditions. J.M.A. Georgia 61:90-93, 1952.

Controlled hypotension induced by vasodilatation reduces blood loss and facilitates pelvic and abdominal surgery.

Hypotensive Anesthesia for Radical Surgery

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COMPLICATED and extensive operations for intraabdominal cancer may be facilitated and blood loss reduced by hypotensive anesthesia. The method entails injection of the ganglionic blocking agent, hexamethonium bromide, and use of postural ischemia, with general anesthesia.

Hypotension in surgical shock results from a reduction of blood volume and is accompanied by vasoconstriction, which may lead to tissue anoxia and eventual death. However, if the patient's blood volume is unaffected, hypotension is not a dangerous situation within relatively wide limits of duration, state C. Paul Boyan, M.D., and Alexander Brunschwig, M.D. Theoretically, the principle of induced hypotension to reduce loss of blood from the operative field is sound, provided the blood pressure can be lowered by arteriolar dilatation without decrease of circulating blood volume.

The procedure used for 32 patients is described.

The patient is carefully premedicated as usual with morphine and scopolamine or atropine and is anesthetized with 2.5% Pentothal Sodium and 8 to 15 mg. of d-tubocurarine chloride by intravenous intubation. An endotracheal tube is inserted and ether administered by closed absorption technic. If blood pressure drop is not greater than 20 mm. of mercury, 20 to 40 mg. of hexamethonium bromide is injected into the intravenous tubing. In case of a greater fall of systolic pressure, not more than 15 to 20 mg. is given as an initial dose.

The patient is placed in approximately a 30° Trendelenburg position. Within three to five minutes the systolic blood pressure usually drops to 50 to 70 mm. of mercury. If not, additional doses of not over 20 mg. at a time are administered at intervals of five minutes until the desired low level is reached. The optimum is between fifty-five and sixty-five systolic.

The patient remains pink and warm. Blood loss is estimated and immediately replaced. The blood pressure rises in one half to one hour and, if additional excisional surgery is required, more hexamethonium is administered. Before closure of the abdomen, the systolic blood pressure is returned almost to normal by the infusion of a dilute solution of Neosynephrine. The response is immediate and allows the surgeon to clamp and ligate any vessels which did

Hypotensive anesthesia in radical pelvic and abdominal surgery. Surgery 31:829-838, 1952.

not bleed during the hypotensive state. For closure, the Trendelenburg position is reduced.

Venous pressure does not vary during hypotension. No abnormalities were noted on electrocardiograms taken before and after hypotensive anesthesia. The recovery time from anesthesia is not prolonged nor is postoperative hemorrhage significant.

Individuals not well sedated require larger amounts of hexamethonium to produce the desired hypotension. When the blood pressure returns to normal before the abdomen is closed, few bleeding points not previously noted are seen. Apparently the time interval of hypotension allows clotting to occur. Dislodgment of clots by vigorous sponging of the operative field defeats this mechanism.

A low incidence of venous thrombosis in the legs suggests adequate blood circulation during the hypotensive state.

Many questions related to hypotensive anesthesia demand investigation. The oxygenation of the brain is of prime importance. No clinical sign of impairment has been observed. Oliguria or anuria does not ensue.

Iliopsoas Transfer for Hip Abductor Weakness

W. T. MUSTARD, M.D.

PARALYSIS or weakness of the hip abductor muscles allows the pelvis to tilt to the opposite side when the body weight is borne on the affected limb; an awkward gait results. In such cases, the iliopsoas muscle is ideally suited to stabilize the hip, states W. T. Mustard, M.D., of the Hospital for Sick Children, Toronto.

The iliopsoas has the necessary muscle bulk to equal the hip abductor muscles, and the short fibers of the iliacus are effective in stabilization rather than motion. The innervation of the muscle is such that the anterior horn cells are often spared when the hip abductors are paralyzed by poliomyelitis.

The hip is stabilized by transferring the iliopsoas with the insertion into the lesser trochanter, laterally to the shaft of the femur below the greater trochanter. An anterolateral incision is used and the iliopsoas is passed through a notch cut in the wing of the ilium between the anterior superior and anterior inferior iliac spines.

Two major requirements are necessary for success of procedure: [1] The patient must have a good or normal gluteus maximus to assist in pelvic stability. [2] A normal sartorius is necessary for hip flexion. A good or normal rectus femoris aids somewhat in hip bending, permitting flexion to a right angle.

Iliopsoas transfer for weakness of the hip abductors. J. Bone & Joint Surg. 34-A:647-650, 1952.

Failure to recognize the severity of ankle damage is usually the most disastrous when eversion injury is involved.

Injuries of the Ankle

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Emory University, Atlanta

THE true severity of ankle injuries may be overlooked in the absence of roentgenographic evidence of displaced fracture; serious disability can result. Restoration of normal weight-bearing relationships is the aim of treatment for the patient with an injured ankle.

Injuries of the joint formed by the talus, the tibia, and the fibula may be manifest solely in bone, in ligament, or in a combination of the two tissues, states Robert P. Kelly, M.D. An understanding of the anatomy and mechanism of production is essential to effective management.

The common ankle injuries derive from one of the basic foot motions, either inversion or eversion. Inversion injuries (Fig. 1) threaten the fibular collateral ligament or the lateral malleolus. When the bony structure gives, the fracture line is transverse. The residual unspent force in either ligamentary or bony injuries may be dissipated in vertical fractures of the medial malleolus with or without displacement.

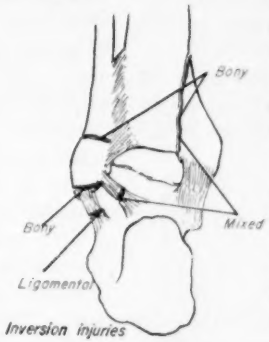

Figure 1

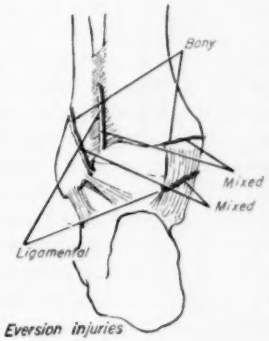

Figure 2

Eversion injuries (Fig. 2) may disrupt only ligamental structures or may result in a pattern of injuries roughly reciprocal to that with inversion injury. Significant eversion injury probably cannot appear without concurrent damage to the deltoid ligament or the bony counterpart and to the interosseous ligaments or their bony counterpart.

Basic injury patterns are modified by the amount of rotation and compression entailed, the exact position of the forefoot at the time of injury, and the magnitude of the traumatic force tending to displace the foot backward on the tibia.

Inversion and eversion accidents have to

Ankle injuries. Kentucky M. J. 50:281-288, 1952.

be differentiated when no fracture line is shown in the roentgenogram. The patient's description of the mechanism and clinical observation are important. Stress films using anesthesia may be necessary.

Inversion without fracture produces greater swelling and tenderness laterally than medially or anterolaterally, especially over the anterior talofibular ligament. Medial swelling is pronounced in eversion injury, and anterior tibiofibular ligament tenderness is likely to be present. Increased distance between the medial malleolus and the talus is occasionally noted on the roentgenograms.

Swelling and external signs of damage may not reflect the severity of ligamental disruption in the common inversion injury. Treatment by strapping or novocain injection can result in laxity of the lateral ligaments, an untenable condition for a young active individual. Especially when stress films indicate ligamental injury, plaster immobilization in a walking cast for six to eight weeks is indicated. To prevent stiffness, the toes should be moved freely.

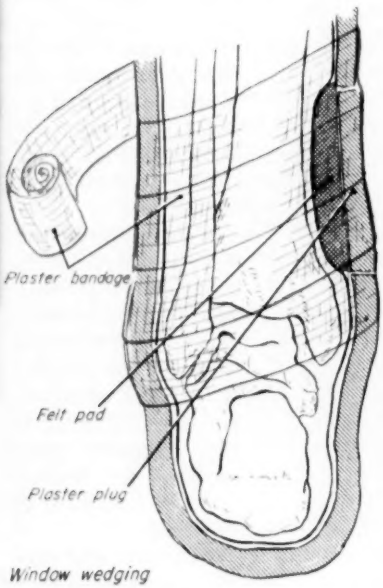

Figure 3

Medial malleolar fractures must be perfectly reduced. Manipulation consists of direct pressure over the inner aspect of the heel and the medial malleolus in a lateral direction, with counterpressure medially over the lateral aspect of the ligament above the ankle. Immobilization should be maintained for at least ten weeks. Open reduction with the transverse insertion of a screw is indicated when closed reduction fails.

If a severe degree of ligamental damage is overlooked in eversion injuries, serious disability may result, regardless of the patient's mode of living. Unless stress films reveal otherwise, treatment is given on the assumption that combined tears of the deltoid and the interosseous ligaments have occurred.

After immobilizing the foot in plaster, new films are made. If the distance between the talus and medial malleolus is still widened, "window wedging" can be used to make pressure on the tibia above the talus and restore the weight-bearing relationship (Fig. 3). Open reduction may be necessary.

Reduction maneuvers, when a medial malleolus fragment is present, consist first of traction, then of

internal rotation of the foot about the long axis of the tibia, and, finally, while still maintaining traction, of pressure on the tibia above the ankle in a lateral direction with counterpressure over the heel below the ankle.

If the talus is displaced posteriorly on the tibia, the foot must be pulled anteriorly while the maneuvers are performed. The foot is placed in forced dorsiflexion for a displaced fracture of the posterior tibial lip. Plaster at first should go above the knee but, in the final weeks, a boot cast may be used with a walking iron. Immobilization must be continued for ten weeks and more.

Plaster may prove inadequate for the purely ligamental eversion injury—spread mortise. The simplest form of operative repair is gained by inserting a screw or bolt to pull the tibia and fibula together tightly. Weight-bearing relationships are restored.

Fractures of the anterior and posterior lip may complicate ankle injuries, especially the eversion type. Accurate reduction and dependable fixation of anterior lip fractures are a necessity. Perfect reduction, often by operation, is necessary if the posterior lip fracture comprises more than one-third of the joint surface in the lateral view.

Compression injuries are best treated by continuous or fixed traction, probably as a preliminary to ankle fusion.

Iliac Crest Pinch Transplants

H. KARCHER, M.D.

For filling the defects after excochleation of bone cysts or foci of osteitis fibrosa, transplants of small pieces of the iliac crest are valuable.

H. Karcher, M.D., of the University of Heidelberg finds that the results of excochleation are not satisfactory in the treatment of bone cysts or osteitis fibrosa because bone regeneration and filling of the defect are incomplete in most instances. When the defect is filled with several small bone pieces, good healing with quick restoration of the load-bearing capacity is achieved.

The operative technic is comparatively simple: When possible, the approach to the lesion is effectuated by a trephine opening, thus preserving a piece of bone cortex for closure. After the cavity has been cleaned of all debris and diseased bone tissue removed by curettage, the defect is filled as compactly as possible with pieces obtained from the iliac crest by a Luer forceps. The trephine piece of cortex is then replaced and the periosteum is carefully closed.

Die Ausmauerung von Knochencysten und Ostitis fibrosa-Herden mit Beckenkammtransplantaten im Vergleich mit anderen Behandlungsmethoden. Langenbecks Arch. u. Dtsch. Z. Chir. 271:580-593, 1952.

Individualized neostigmine dosage remains the chief treatment for most cases of myasthenia gravis.

Treatment of Myasthenia Gravis

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DESPITE intensive study for many years, no cause of myasthenia gravis has been found; neostigmine remains the principal therapeutic agent for the disease, observe Paul Chodoff, M.D., and John R. Mc Greevy, M.D.

Occurring chiefly during the ages 20 to 40, symptoms of the disease usually progress to the point of recognition after a period of weeks or months, though sometimes symptoms are not identified for a number of years. In other cases the disease is suddenly manifest in severe form.

In order of frequency, symptoms are: [1] ptosis of the upper lids and diplopia; [2] general weakness; almost every patient feels relaly of the extremities; [3] dysphagia and dysarthria; and [4] infrequently, weakness of the neck muscles. Repeated movements of the affected part produce the typical tiredness; almost every patient feels relatively well on awakening and gets progressively worse during the day.

Remissions averaging two years occur in about one-third of all patients.

Confirmation of diagnosis is a test involving the intramuscular injection of 1.5 mg. of neostigmine methylsulfate; 0.6 mg. of atropine is given at the same time to decrease unpleasant side effects. Persons with myasthenia improve greatly in fifteen to twenty minutes. Quinine and curare should not be used for diagnostic purposes in these cases because of possible alarming side effects. Faradic stimulation of the affected muscles will produce brisk then progressively feeble contractions to the point of extinction—the so-called myasthenic reaction.

Differential diagnosis includes polyneuritis, the muscular dystrophies and atrophies, encephalitis, bulbar paralysis, and syphilis. The psychoneuroses in which weakness and fatigue are prominent can be excluded by eliciting a history of weakness relieved through rest and of remissions along with the neostigmine test. Time, by providing additional symptoms, often reveals the diagnosis.

The disease is reasonably well controlled in most cases with 3 to 9 tablets of 15 mg. of neostigmine each a day. The best interval is

Myasthenia gravis—a survey. M. Ann. District of Columbia 21:307-311, 1952.

determined by therapeutic trial. Because of relative freedom from side effects, neostigmine is used instead of prostigmine.

Untoward effects of the medication, such as gastrointestinal cramps, nausea, diarrhea, or excessive salivation, occur most frequently if the drug is taken when the stomach is empty and are less apt to cause difficulty if atropine, 0.6 mg., or belladonna, 10 to 20 drops, is taken fifteen minutes before meals.

Double or even triple the amount of neostigmine may be necessitated by the progressive course of the disease or by concurrent physical illnesses. Intramuscular injections, tube feeding, and a Drinker respirator may be required.

Because the prompt use of antibiotics may inhibit exacerbations induced by respiratory and other illnesses, patients should be taught to seek help with the first sign of a cold or fever.

Adjuvants to therapy include potassium chloride, guanidine hydrochloride, ephedrine, and, possibly, ACTH. Thymectomy has also been tried because patients often have enlarged thymus glands.

The anticholinesterase drugs with prolonged action are being tried but have not yet been accepted for practical use.

Electroencephalograms of Pugilists

YRJÖ TEMMES, M.D., AND ERKKI HUHMAR, M.D.

PRIZE fighting not infrequently causes permanent brain lesions, shown by loss of physical and mental efficiency and by abnormal electroencephalographic tracings.

Acute symptoms are those of concussion or subdural hematoma. Subsequent electroencephalographic patterns are the type associated with old closed head injuries involving concussion.

In a period of about one year, 8 former amateur boxers were examined for suspected brain lesions in the Finnish Red Cross and Lapinlahti hospitals, Helsinki.

Yrjö Temmes, M.D., and Erkki Huhmar, M.D., noted cerebral dysrhythmia characterized by breaking and reduction of alpha waves, increase of fast waves, and in the most severe cases by reduced electroencephalographic activity. Records progressed from slight irregularities for 2 youths, aged 20 years, to severe pathologic changes for 36- and 37-year-old pugilists.

All subjects had boxed at least four years and been knocked out 2 times or more. Symptoms were temporary or constant headache, loss of memory, fatigue, tremor of hands, and deafness or buzzing in the ears.

Electro-encephalographic changes in boxers. Acta psychiat. & neurol. Scandinav. 27:175-180, 1952.

Ultrasound applied through media other than air may be helpful experimentally but is uncertain therapeutically.

Medical Aspects of Ultrasonics

HORACE O. PARRACK, U.S.A.F.
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THE so-called ultrasonic sickness of personnel working around jet power plants is probably due more to hysteria and excessively dramatic publicity than to ultrasound.

The physicists who made the earliest measurements on ultrasound fields stated that if the sound waves were audible, the levels were high enough to be damaging to the ear. Later quotations of these conclusions apparently neglected the qualifying phrases, and stories of the mysterious effects of ultrasonics grew.

In relation to the industrial use of ultrasonics, Maj. Horace O. Parrack, U.S.A.F., states that reasonable care in process layout and utilization of protective equipment should remove any possible hazards. Likewise, the probability of hazards should be considered in the medical use of ultrasonics, experimental, diagnostic, or therapeutic.

INDUSTRIAL APPLICATIONS

Ultrasound equipment is used to detect flaws in and to determine properties of materials, to prepare emulsions, and for agglomeration of particles from liquids and gases. These operations are so arranged and the equipment so designed that little chance exists for direct contact of the operator with the generator or the material being tested. Chance of a hazard to personnel is negligible.

Operations such as removing grease from metals and other cleaning processes employing ultrasonic energy may require direct contact of the attendant with the irradiated material so that a probable danger exists. In such operations, equipment should be used to prevent contact between any part of the operator's body and the generator or material being irradiated.

MEDICAL APPLICATIONS

Experimental—The production of heat always accompanies ultrasonic irradiation of bone, nerve, and other tissue. Since heat may cause damage, all effects of ultrasonic energy have been attributed to the results of overheating. However, effects are still produced by ultrasonic irradiation when the factor of overheating is controlled.

Diagnostic uses—Foreign bodies or crystal secretions in the body may possibly be located by use of ultrasonic waves. Reasonably satisfactory ventriculograms have been obtained with ultrasonics without using operative procedures or the injection of gas. Another applica-

Ultrasound and industrial medicine. Industrial Med. & Surg. 21:156-164, 1952.

tion of ultrasonics in diagnosis is as a possible method for localizing gallstones.

Therapeutic uses—Most American investigators have found that the therapeutic effect of ultrasonic energy is uncertain and that the hazards from excessive exposure and destruction of tissue are considerable.

The use of therapeutic apparatus when the operator is in contact with the generator for several hours a day is probably harmful unless protective equipment is used. Burning of the operator's skin and other undesirable actions have been described in German reports. At present the degree and extent of the dangers cannot be stated.

If use of ultrasonic equipment becomes extensive in therapy, the nature and extent of the risks must be carefully ascertained. However, such hazards should be easily controlled.

Contact Roentgen Therapy of Common Warts

JOHN G. THOMSEN, M.D., AND JOHN E. RAUSCHKOLB, M.D.

PRACTICAL and effective treatment of common warts is possible with contact x-rays. Each lesion is treated in a few seconds, a special advantage for children. Rays are chiefly absorbed in pathologic tissue, permitting greater safety to underlying structures than in ordinary technic.

The contact apparatus used by John G. Thomsen, M.D., of Peoria, Ill., and John E. Rauschkolb, M.D., of Cleveland has an output of 9,000 to 9,600 r at a target-skin distance of 18 mm., or from 150 to 160 r per second.

A thin lead-foil shield with central opening can be employed at 18 mm., or sheet lead 2 mm. thick at a target-skin distance of 20 mm. Lesions are pared flat, subungual growths exposed by clipping the nail, and the involved part is either held against the tube or immobilized and the tube brought into position.

The treatment period averages fifteen to twenty seconds. Several warts may be irradiated at a sitting, but no area is exposed twice.

An intense but superficial inflammatory reaction develops ten to fourteen days after treatment. If the verruca has not fallen off in three weeks, the time of the second visit, the remnant is pared away. Crusting and scaling usually disappear a week or two later.

Contact therapy was applied to 540 warts on 117 patients, as a rule with single exposures of 2,100 to 2,500. The rate of cure was 83.6%. Doses between 2,500 and 3,000 r might be more satisfactory.

Contact x-ray therapy of the common wart. Arch. Dermat. & Syph. 65:553-556, 1952.

Book Chapter

The Arrhythmias

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Mount Sinai Hospital, New York City

MARVIN MOSER, M.D.‡
Walter Reed Army Hospital, Washington, D. C.

From the book, Cardiac Emergencies and Heart Failure§

CHANGE in heart rate or rhythm is a common cause of acute distress in patients with or without cardiac disease. Even with a normal heart, an arrhythmia may produce many symptoms such as pounding, fright, precordial aching or severe pain, vertigo, syncope, vomiting, collapse, and, rarely, congestive heart failure. Most severe circulatory derangements may follow the onset of ectopic arrhythmias with rapid rate—the paroxysmal tachycardias.

A change from a normal heart rate of 70 to 90 to a rate of 120 to 130 usually increases minute volume output; for, despite the fact that ventricular filling and stroke volume may be decreased, the product of heart rate and stroke output is increased. When the heart rate is between 120 to 130 and 180, however, no further increase in minute output occurs. With further increases in cardiac rate, total minute volume is actually reduced. This may result in severe cerebral anoxia, fainting, or convulsions.

If the tachycardia is allowed to persist, it may result in a further decrease in cardiac output, shock, and cardiac failure. A picture of coronary insufficiency with chest pain and RS-T and T-wave changes in the electrocardiogram may also occur if the tachycardia continues.

A correct diagnosis is important before specific therapy for paroxysmal tachycardia can be instituted. Any of the tachycardias may be transitory, and it is best to wait several hours before beginning drug therapy, except when the patient is in shock or cardiac failure. Individuals with normal hearts may be able to tolerate rapid heart rates for weeks or months without any detectable alterations in cardiac function. Some patients, however, are emotionally disturbed and may experience precordial discomfort as a result of prolonged rapid beating of the heart; in such cases, treatment should be started early.

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§From the book, *Cardiac Emergencies and Heart Failure: Prevention and Treatment.* 159 pages. Published by Lea & Febiger, Philadelphia, 1952. $3.

Certain general measures are of value in the prevention and treatment of all tachycardias: rest and sedation and the avoidance of tobacco, alcohol, caffeine, and emotional upsets. Occasionally, the ingestion of small amounts of alcohol will prevent the recurrence of tachycardias, although this is not common. On rare occasions eating fatty foods or large meals produces auricular arrhythmias.

AURICULAR FIBRILLATION

The most common serious arrhythmia, auricular fibrillation, occurs most frequently in patients with rheumatic and arteriosclerotic heart disease and may be seen with Graves's disease, after operations, or with pneumonia or other febrile illness. Both the paroxysmal and chronic types are seen occasionally in the absence of organic heart disease.

The paroxysmal form usually sets in abruptly, with a ventricular rate between 120 and 160 and a totally irregular rhythm. A pulse deficit may be present. When heart failure is absent, it is best to observe the patients for several hours, at rest and with sedation. If the fibrillation persists, 3 gr. (0.2 gm.) of quinidine should be given orally every two hours.

The first dose may be used to test sensitivity, for reactions usually occur within two hours if the patient is allergic to the drug. True sensitivity is unusual, however, and treatment of a patient who is critically ill should not be delayed.

If there is no change in rhythm after four hours, the dose is increased to 6 gr. (0.4 gm.) every two hours. Quinidine has relatively little cumulative effect, and peak plasma levels are reached after 4 or 5 adequate doses have been given. If the same dose is administered thereafter, the plasma level rises only slightly, and the dose must be increased again to achieve an effect. The total daily or weekly dose is of much less importance in determining plasma concentration than is the amount of the individual dose, as only traces of quinidine are found in the plasma twenty-four hours after the last dose. Occasionally, it is necessary to raise the dose to 9 gr. (0.6 gm.) every two hours. If regular rhythm is not restored with these doses, larger ones will rarely have the desired effect and, if the arrhythmia persists after twenty-four to thirty-six hours, the drug should be discontinued.

We have used quinidine intramuscularly with excellent results. A suitable preparation is a 20% solution of quinidine sulfate in propylene glycol, 3 gr. (0.2 gm.) per cubic centimeter. The preparation is stable and the injection is rarely painful. The dosage is the same as when given orally, and there is no greater toxicity by this route. Intramuscular medication is especially valuable when oral administration cannot be tolerated. Quinidine hydrochloride is also satisfactory for intramuscular employment. Intravenous quinidine is a dangerous drug for which little indication exists.

If the fibrillation persists after a satisfactory trial with quinidine, the patient should be digitalized. In

all recalcitrant cases, it is essential to exclude the presence of hyperthyroidism or active rheumatic heart disease. In patients with auricular fibrillation and hyperthyroidism the prognosis is excellent, for the arrhythmia will disappear in 95% of cases either spontaneously or following quinidine therapy after the hyperthyroid state has been corrected.

If quinidine restores sinus rhythm, the dose is reduced gradually, and a maintenance dose is instituted; 3 to 6 gr. (0.2 to 0.4 gm.), three times a day, may suffice, but 6 to 9 gr. (0.4 to 0.6 gm.), four or more times a day, may be required for long periods. When quinidine is given four times a day, the first dose is taken preferably on awakening, the second at midday, the third in the evening, and the fourth just before retiring, to maintain adequate blood levels.

In unusual instances, the fourth dose must be given during the night. Recently 3-gr. (0.2-gm.) enseals of quinidine have been introduced to avoid dosage during the night. The drug in this form is more slowly absorbed, allowing a greater interval between doses.

If only one attack has occurred or if episodes are infrequent, quinidine need be given only for one week. If paroxysms occur frequently, prophylactic quinidine should be continued indefinitely.

Occasionally, the attacks respond to quinidine with increasing difficulty as they become more frequent. In such cases moderate doses of digitalis, in addition to quinidine, are sometimes beneficial. When the attacks recur with increasing frequency and do not readily respond to quinidine, it may be more advisable to slow the ventricular rate with digitalis than to attempt to restore sinus rhythm with quinidine.

When employed properly, quinidine is a safe and effective drug. Harmful effects have, in general, been overemphasized. Several premonitory signs and symptoms of overdosage should be kept in mind. The most common may be grouped under the term cinchonism. They include tinnitus, impaired hearing, headache, blurring of vision, giddiness, nausea, vomiting, abdominal cramps, and diarrhea. If the drug is given too rapidly, by the intravenous route, respiratory depression and convulsions may result. Rarely, a true idiosyncrasy may be present. In such cases acute respiratory distress and circulatory collapse appear even after small doses. Serious skin eruptions occasionally are a manifestation of quinidine sensitivity, and, rarely, thrombocytopenic purpura develops. Sensitivity reactions should be treated by immediate withdrawal of the drug. Blood transfusions should be given if required, and antihistaminic preparations may be of great value.

Quinidine produces significant electrocardiographic changes, widening of the QT interval being the most common. This is due to widening of the RT segment and, only occasionally, to widening of the QRS complex. The latter indicates a toxic effect of quinidine. If significant widening of the QT inter-

val is found or other severe symptoms develop, the drug should be discontinued. If the patient is desperately ill because of an arrhythmia, it may be necessary to continue quinidine administration, despite mild symptoms of toxicity. However, if severe symptoms occur, the drug should be discontinued and other medication given.

We have not hesitated to employ quinidine in supraventricular arrhythmias with bundle-branch block, and have not observed any serious reactions as a consequence.

When quinidine is unobtainable, oral potassium, 5 to 10 gm. given daily every four hours, may convert auricular fibrillation to sinus rhythm.

If heart failure is present during the paroxysm of auricular fibrillation, digitalis should be administered immediately. It increases the degree of A-V block and slows the ventricular rate, but does not affect the fibrillation. Digitalization can be accomplished in many ways with various preparations. It is advisable to learn the potentialities of one preparation for oral use and of another for intravenous administration.

If the patient is acutely ill and immediate digitalization is indicated, strophanthin K or ouabain (G strophanthin) should be given intravenously. These drugs have a very brief latent period and are usually effective in five to fifteen minutes, with a maximum effect in thirty minutes to two hours. A safe initial dose is 0.3 mg.; within half an hour, 0.1 mg. may be given, and repeated every half hour or hour until the ventricular rate is slowed to 70 or less. Strophanthin K is available in 1-cc. ampules containing 0.65 mg., and ouabain in 0.5-cc. ampules containing 0.1 mg. and 2-cc. ampules containing 0.5 mg.

Lanatoside C (Cedilanid) may also be given intravenously. It has a slightly longer latent period and causes a decrease in heart rate in from twenty minutes to two hours. Its effect lasts longer than that of strophanthin K or G, making the drug ideal if moderately quick and slightly prolonged action is required. The initial dose given is approximately one-half the digitalizing dose—0.8 mg. (4 cc.), followed by 0.4 mg. (2 cc.) every four to six hours, as required. Cedilanid is available in 2-cc. ampules containing 0.4 mg. and in 4-cc. ampules containing 0.8 mg.

These preparations are eliminated fairly rapidly, and the digitalization effect will be lost if longer acting digitalis preparations are not administered within twenty-four hours. In this way, digitalization is maintained. Another very satisfactory method, if the patient is able to take medication orally, is to give an initial intravenous dose, and at the same time begin oral digitalization. Intravenous medication is not repeated and oral digitalis is continued, thereby giving rapid effect and prolonged action.

We have found Digoxin a very safe and effective preparation for oral digitalization. It has the advantage of a pure substance of definite and constant composition and, unlike digitalis leaf, is almost

completely absorbed from the gastrointestinal tract. It is eliminated rapidly, and is not as apt to cause cumulative toxic effects as do the more slowly excreted glycosides, such as Digitoxin. The effect of a single dose of Digoxin usually persists for several days only, whereas the effect of Digitoxin may continue for two to three weeks.

The amount of any preparation required for digitalization varies greatly from person to person, and the dosage must be individualized. The digitalizing dose of Digoxin varies between 1.5 and 5 mg. An initial dose of 1 to 1.5 mg. is given; thereafter, 0.5 mg. every six hours, until the desired effect is obtained. The maintenance dose is 0.25 to 0.75 mg. (1 to 3 tablets) daily, most patients being well controlled on 0.5 mg. Frequently, giving 0.25 mg. and 0.5 mg. on alternate days proves very satisfactory.

Many physicians still use the whole digitalis leaf preparation for both digitalization and maintenance. This preparation is a good one, but the delayed onset of action and the long period required for dissipation are usually disadvantageous. When the patient will not take medication regularly, however, the use of the leaf is preferable, since the effect of Digoxin disappears in forty-eight hours and the patient may go into cardiac failure if he neglects to take it for two or three days. This danger is less when digitalis leaf is used. The whole leaf is much safer than Digitoxin and usually gives good results. Initial digitalization with the leaf can be accomplished with a total dose of 15 to 22.5 gr. (1 to 1.5 gm.) over a period of twenty-four to forty-eight hours, as desired. A useful guide is to give 1.5 gr. (0.1 gm.) per 10 lb. of body weight. Adequate maintenance is usually achieved with 1 to 3 gr. (0.06 to 0.2 gm.) daily.

The patient should be observed carefully for signs of digitalis toxicity. Not infrequently, the most important and earliest are abdominal distention, cramps or pain, and visual disturbances. Occasionally, cerebral symptoms, such as confusion, dizziness, and delirium, appear. Nausea, vomiting, and diarrhea occur in most cases of digitalis overdosage but may be late manifestations. The most significant sign of overdigitalization is an arrhythmia, resulting commonly from ventricular premature beats which occur in pairs or triplets and produce bigeminal or trigeminal rhythm. Bradycardia and various degrees of A-V block may also be observed. Premature beats may be found in patients who are not nauseated and do not vomit; if they occur, the drug should be discontinued or the dosage decreased.

Depression of the RS-T segment or inversion of the T wave in the electrocardiogram indicates that digitalis has had an effect on the heart muscle but does not imply toxicity. In patients with hyperthyroidism, digitalis is usually ineffective. Conversely, when a patient with auricular fibrillation or congestive failure fails to respond to adequate doses of digitalis, one should suspect hyperthyroidism. On

the other hand, some people with hyperthyroidism have an increased susceptibility to digitalis and readily develop toxic symptoms. Careful studies with radioactive iodine may reveal hyperthyroidism as the cause of certain instances of such digitalis sensitivity.

The various arrhythmias resulting from digitalis overdosage usually disappear spontaneously. They disappear within two to three days after Digoxin has been discontinued, but they may continue for two to three weeks if Digitoxin has been given. Usually no treatment is necessary for the arrhythmia, except withdrawal of the drug. In some instances of ventricular premature beats, of supraventricular tachycardias, or of ventricular tachycardias induced by digitalis, specific therapy may be necessary. In these cases, potassium chloride or acetate, given orally, usually eliminates the arrhythmias within thirty minutes; 2 to 10 gm. of a 20% solution may be given in syrup of citric acid or smaller quantities may be given in milk, orange juice, or ginger ale. When potassium is given in this manner, nausea and vomiting usually do not occur. The effect produced will last for only two to four hours, and the treatment may have to be repeated. Toxic effects of potassium do not occur if urinary excretion is adequate. Rarely is it necessary to use potassium intravenously; if it is, extreme caution should be used, and only 0.5 to 1.5 gm. should be given slowly. Electrocardiograms should be taken frequently to detect potassium toxicity. Marked peaking of the T waves, widening of the QRS complexes, and disappearance of P waves are the most commonly observed changes with potassium intoxication.

Atropine is often effective in abolishing the A-V block caused by digitalis.

In auricular fibrillation secondary to hyperthyroidism or active rheumatic fever, digitalis is ineffective. After the hyperthyroidism has been treated with radioactive iodine or other methods, the arrhythmia often disappears spontaneously or responds to quinidine therapy.

Radioactive iodine is usually picked up by the thyroid gland within twenty-four hours, but its effect on metabolic processes may not become evident for four to six weeks. It may be necessary, therefore, to administer Lugol's solution (10 drops, three times a day) during this period. This medication may be started twenty-four hours after radioactive iodine has been given, and should be continued for approximately three weeks. The effect of the Lugol's solution will last for another week, at which time the radioactive I_{131} effect will have begun to manifest itself.

If propylthiouracil alone is used in hyperthyroid patients, an effect on the arrhythmia should be seen within two to four weeks. The prognosis in these cases of auricular fibrillation due to hyperthyroidism is excellent, if the primary disease is controlled.

Auricular fibrillation occurring during active rheumatic fever usually responds to digitalis or quini-

dine therapy when the active process has been controlled. Failure to respond to digitalis suggests that the underlying disease is still active. The prognosis in these cases is not nearly as good as in patients who have hyperthyroidism, especially if a mitral valvular lesion is present.

AURICULAR FLUTTER

The ventricular rhythm is usually regular in auricular flutter, with a rate of 125 to 180, but may be irregular, because of varying degrees of A-V block and thus may resemble auricular fibrillation. Auricular flutter may sometimes be distinguished from fibrillation by the observation of rapid, regular venous pulsations in the neck at a rate of over 250, corresponding to the rate of the flutter waves in the electrocardiogram. Usually, the atrial rate varies between 250 and 350, and a 2:1 A-V block is present.

When auricular flutter is complicated by a bundle-branch block pattern, it may simulate ventricular tachycardia electrocardiographically. Occasionally, auricular flutter can be diagnosed with certainty only in the electrocardiographic leads taken to the right of the sternum or from the right chest or back. In rare instances, it is necessary to take esophageal leads to record the auricular waves.

Auricular flutter is usually paroxysmal but may become chronic and continue for years. If a paroxysm does not remit spontaneously after several hours, an attempt should be made to stop the attack with digitalis or quinidine, digitalis being employed in all cases with heart failure. Digitalis slows the ventricular rate and increases the efficiency of the heart. It is our policy to administer digitalis, convert flutter to fibrillation, and then stop the digitalis, in the hope that sinus rhythm will result. If sinus rhythm does not occur, quinidine is employed to restore the normal rhythm; usually, a small dose will be effective. Digitalis and quinidine are employed as for auricular fibrillation. In critically ill patients, there should be no hesitation about using intravenous digitalis, followed by intramuscular quinidine, if necessary.

In some instances, auricular flutter persists in spite of all these measures, and the patient must be maintained on digitalis, as in chronic auricular fibrillation. Some patients may continue to have auricular flutter for years and then suddenly have spontaneous remission.

If attacks of paroxysmal auricular flutter recur frequently, an attempt should be made to prevent them by the continuous use of quinidine. The dose of quinidine for maintenance is 3 to 6 gr. (0.2 to 0.4 gm.), four times a day. In some cases, however, we have found it necessary to increase the dose and the frequency of administration, giving as much as 9 gr. (0.6 gm.), four or five times a day. If this is not effective, digitalization should be carried out and a maintenance dose continued. In this way, a certain degree of A-V block is maintained and, when an attack occurs, the ventricular rate may not markedly increase, despite

a rapid auricular rate. This may serve to keep the patient symptom-free during an attack. This method is not successful in all cases for, despite adequate digitalization, a tachycardia sometimes develops and symptoms appear.

AURICULAR AND NODAL TACHYCARDIA

Auricular and nodal tachycardia cannot be distinguished clinically and are treated alike. These tachycardias are often functional and may be precipitated by tobacco, alcohol, infections, gastric distention, Graves's disease, allergic reactions, or tense emotional states. Frequently, there is a combination of causes.

The attack generally begins suddenly, although sometimes there is a short premonitory period. The ventricular rate usually is regular, despite changes of position or exercise, and is between 180 and 220 beats per minute, somewhat more rapid than in auricular flutter. Although there is usually a 1:1 ventricular response, a 3:1 or 2:1 response occasionally occurs, with a resultant ventricular rate between 75 and 100.

Frequently, supraventricular tachycardia can be differentiated from auricular flutter by the absence of the flutter waves in the cervical veins. Unlike cases of auricular flutter, in which only transient slowing of the ventricular rate may be noted following vagal stimulation, supraventricular tachycardia often is terminated by this procedure. Supraventricular tachycardias are particularly apt to be evanescent, and patients may have many attacks daily for years without difficulty. Patients subject to recurrent attacks have learned through experience that certain maneuvers stimulating the vagus nerve will abolish an attack—sudden movements of the head, holding the breath, coughing, vomiting, eating, or bending forward.

Often the attack disappears spontaneously but, if it persists, an attempt should be made to terminate it by exerting pressure on the carotid sinus or eyeballs. Pressure over the carotid sinus is applied with the patient prone and the head turned away from the side to be stimulated. The site to be pressed is a pulsating area at the angle of the jaw, at the level of the thyroid cartilage; pressure is applied firmly toward the vertebral column. The right carotid sinus is usually more sensitive than the left.

Pressure should not be applied on both sides at the same time, especially in old people. Ten to twenty seconds should be the limit for pressure on either side. It should be stopped sooner if slowing of the heart rate occurs. Syncope, convulsions, and hemiplegia have been reported following carotid sinus pressure. The prior administration of certain drugs, such as Mecholyl (acetyl beta methylcholine) or lanatoside C, augments the carotid sinus effect, while Benzedrine, epinephrine, Neosynephrine, or large doses of quinidine may inhibit its effect. If pressure on the carotid sinus fails at first, it may be successful after a short

period, especially if applied in conjunction with one of the drugs which tend to increase the effect. We have found carotid sinus pressure effective in about 25% of cases, while eyeball pressure has been less successful.

Eyeball pressure stimulates the oculocardiac reflex and produces inhibitory effects upon auricular muscle and atrioventricular conduction. Pressure for twenty or thirty seconds is applied over both eyeballs simultaneously, the fingers pressing on the closed eyes just below the supraorbital ridge, not over the cornea. Occasionally, a patient responds to eyeball pressure but not to carotid sinus stimulation. These methods should be tried and repeated at least once before beginning other therapy.

If the tachycardia persists, quinidine is administered orally, intramuscularly, or rarely intravenously. If it fails, digitalis should be tried, full digitalization being accomplished rapidly by mouth or vein, as in auricular flutter. Digitalis should, of course, be used in all cases of supraventricular tachycardia complicated by congestive heart failure. This drug appears to be most effective in the treatment of these tachycardias when given by the intravenous route, excellent results being obtained within ten to thirty minutes with 1.2 mg. of lanatoside C. Good results have also been obtained with strophanthin K or ouabain in doses of 0.3 to 0.5 mg. intravenously.

If these physical measures and drugs do not stop the tachycardia, vagal reflexes may be stimulated by inducing vomiting with syrup of ipecac, 4 to 8 cc. by mouth. The dose may be repeated in forty-five minutes and larger doses given if necessary. This drug is highly successful in stopping an attack of tachycardia, but its unpleasant effects have limited its use.

Mecholyl has proved to be most effective in treating supraventricular tachycardia and usually restores normal rhythm within a few minutes, but this drug, too, may produce serious and annoying side effects and is not used unless other measures fail. It is injected subcutaneously, the initial dose being 20 mg., which may be repeated in twenty to thirty minutes. The effect of Mecholyl may be enhanced by massaging the site of injection and pressing the carotid sinus. Some persons react to this drug with severe nausea, vomiting, diarrhea, salivation, precordial pain, or, occasionally, collapse. Shock and death have been reported after its use. Therefore, it is absolutely essential that atropine sulfate, 1 to 2 mg. (1/60 gr. or 1/30 gr.) be on hand when Mecholyl is used. Intravenous atropine sulfate relieves these symptoms immediately.

Mecholyl should not be given to allergic or asthmatic patients because of the danger of inducing bronchial spasm or to hyperthyroid patients because auricular fibrillation may be precipitated. To avoid syncope, it is best to keep the patient horizontal when this drug is used. Mecholyl and carotid sinus pressure usually are ineffective in cases of auricular tachycardia with A-V block and in auricular flutter

and fibrillation and may be ineffective if quinidine has been administered previously.

A less toxic parasympathomimetic drug effective in the treatment of supraventricular tachycardias is acetylcholine, given intravenously in doses up to 100 mg. The effect of this drug is brief, and its side effects are less marked than those of Mecholyl.

Neostigmine, another parasympathomimetic drug, is also effective in abolishing supraventricular tachycardias and is given in doses of 1 mg. intramuscularly. When any one of these drugs is used, atropine should be available for immediate use if necessary.

When mechanical methods are unsuccessful, the distressing side effects of Mecholyl preclude its further use, and when more rapid action than is usually provided by quinidine is desired, Neosynephrine should be employed. When given intravenously, in doses of 0.5 to 1 mg., this drug usually stops an attack of supraventricular tachycardia within twenty to thirty seconds. It produces a rise in blood pressure, stimulation of the cardioinhibitor fibers in the aortic arch and carotid body, and reflex cardiac slowing. Most attacks revert when the systolic blood pressure has risen to 160 mm., and the pressure usually returns to normal within ten minutes or less. There are few toxic effects of the drug, but it should not be used in patients whose blood pressure is elevated during an attack or with ventricular premature beats.

Pronestyl (procaine amide) occasionally stops auricular or nodal tachycardia.

Supraventricular tachycardias are so frequent and so often remit spontaneously that the accurate appraisal of the efficacy of any drug in their treatment is difficult. If there are numerous recurrences of the tachycardia, the frequency of the attacks may be diminished by continued administration of quinidine or digitalis.

VENTRICULAR TACHYCARDIA

Ventricular tachycardia is infrequent and is usually associated with severe myocardial damage, particularly that caused by coronary artery disease. It may be seen in cases of rheumatic heart disease, during cardiac catheterization, and in normal individuals. Occasionally it is possible to differentiate ventricular tachycardia clinically from auricular tachycardia by a slight irregularity in rhythm and a variation in the intensity of the first heart sound.

Digitalis is often a factor in the production of ventricular tachycardia. Some observers believe that all cases of the bidirectional type of this arrhythmia are secondary to digitalis overdosage. If digitalis is discontinued in all patients who develop ventricular premature beats, especially if multifocal, many cases of ventricular tachycardia can be prevented.

Ventricular tachycardia usually responds readily to quinidine, orally or intramuscularly; occasionally, an intravenous dose, 15 gr. (1 gm.), has been required to stop an attack. We believe, however, that quini-

dine should be used intravenously only in dire emergencies.

Pronestyl has been introduced for the treatment of ventricular arrhythmias. This drug is a direct myocardial depressant. It is supplied in 250-mg. capsules for oral use, and in ampules containing 100 mg. per cubic centimeter for administration intravenously. We have used it with excellent results in ventricular tachycardia and premature beats, including cases in which quinidine has failed. Pronestyl is given orally, in doses of 500 mg. every three to four hours, or intravenously, in doses of 250 mg. to 1 gm., at a rate of 100 mg. per minute every thirty to sixty minutes, until an effect is obtained.

An electrocardiogram should be taken while Pronestyl is being given intravenously, as the drug is often effective immediately. If a change in rhythm or widening of the QRS complex occurs, the drug should be stopped. Occasionally, oral doses up to 6 or 10 gm. are required. We have found that both the intravenous and oral routes are satisfactory for the treatment of the acute episodes, but the intravenous administration of Pronestyl produces a much more rapid effect.

Although Pronestyl ordinarily does not produce serious reactions, it may cause a marked fall in blood pressure or even cardiac standstill when administered intravenously. This may be prevented or counteracted by Neosynephrine (1 to 5 mg.) intramuscularly. The injection should be given slowly and blood pressure readings should be made during the injection. When the drug is given orally in large doses, it may produce nausea and other gastric symptoms, making it necessary to stop or reduce the dosage. Frequent blood counts should be made and evidence of purpura or bleeding watched for.

Pronestyl is also invaluable for the prevention and treatment of ventricular arrhythmias associated with operative procedures, and may be useful in intracardiac catheterization.

Pronestyl has now been used prophylactically by us in a small series of patients who previously experienced repeated bouts of ventricular tachycardia. Although this drug is able to terminate the acute attacks quickly and effectively, it does not appear to be completely effective in preventing recurrence of attacks when used orally, 500 mg. three to four times daily. Patients with repeated attacks should, perhaps, be given much larger doses. At the present time the best procedure appears to be to give Pronestyl for the acute episode, and quinidine prophylactically.

Other drugs have been used in the treatment of ventricular tachycardias. Intravenous magnesium sulfate has proved effective in occasional cases. When given rapidly, in 2- to 4-gm. doses (10 to 20 cc. of a 20% solution) this drug may terminate an attack after other measures have failed. Transient, unpleasant side effects such as nausea, flushing, weakness, and dizziness may appear. It should be reserved for use after other therapy has proved ineffective.

Atabrine, in doses of 0.4 gm. in-

tramuscularly, is occasionally effective. Intravenous morphine sulfate, 10 to 20 mg. (⅙ to ⅓ gr.), repeated every hour if necessary, has been used successfully by several different observers. Potassium salt (citrate or acetate in syrup or water, or chloride as enteric-coated tablets) orally, either alone, in doses of 1 to 5 gm. two to four times daily, or in conjunction with quinidine, has recently been advocated for refractory cases or to diminish the frequency of recurrences of ventricular tachycardia. We have found potassium to be particularly useful for ventricular tachycardia secondary to digitalis overdosage and for patients sensitive to quinidine.

Dibenamine hydrochloride, an effective adrenergic blocking agent, deserves a clinical trial in ventricular tachycardia which is not precipitated by operative procedures.

VENTRICULAR FIBRILLATION

Ventricular fibrillation is rarely diagnosed clinically and, although it probably accounts for some cases of sudden death, its exact incidence is difficult to determine. It occurs particularly in association with myocardial infarction, anesthesia, or excessive amounts of digitalis. The patient becomes pulseless and unconscious and rapidly goes into shock. Convulsions occur if this arrhythmia persists more than thirty seconds.

The electrocardiogram shows bizarre ventricular complexes and a completely irregular rhythm. Clinically, these attacks resemble a Stokes-Adams seizure secondary to complete heart block and cardiac standstill. It is important to distinguish between these two conditions electrocardiographically. The use of sympathomimetic drugs—epinephrine or ephedrine—so valuable in the treatment of cardiac asystole, is contraindicated in ventricular fibrillation. If possible, the physician should obtain an electrocardiogram during the attack to establish its exact mechanism. Once an episode is diagnosed correctly as ventricular fibrillation it can be assumed that subsequent attacks will be caused by a similar mechanism and not by cardiac standstill, and they may be treated accordingly. Bouts of both ventricular fibrillation and cardiac asystole may occur in the same patient.

Since an immediate effect upon the arrhythmia is necessary, intravenous quinidine should be given promptly as quinidine lactate 6 to 9 gr. (0.4 to 0.6 gm.), despite the fact that this route of administration is not without danger. Magnesium sulfate, 10 cc. of a 20% solution, may also be effective. Intravenous atropine, 2 mg. (1/30 gr.), has been used successfully to abort the acute attack; smaller doses, 0.5 mg. (1/100 gr.) intramuscularly have been given daily to prevent recurrent bouts in patients subject to paroxysmal ventricular fibrillation. In many cases the attack will cease or the patient expire before therapy can be instituted.

HEART BLOCK

Complete heart block, with sudden failure of the idioventricular pacemaker and asystole, is the commonest cause of Stokes-Adams

syndrome, although a similar clinical picture may be seen in cases of ventricular tachycardia or other arrhythmias. Heart block is usually seen in patients with organic heart disease secondary to coronary arteriosclerosis, but a small percentage of cases results from digitalis overdosage. Congenital heart block may account for 10% of all cases.

Many patients experience only momentary weakness or unconsciousness and need no therapy, but others have severe symptoms and require immediate treatment. In extreme cases in shock, 0.5 to 1 cc. of a 1:1,000 solution of epinephrine is given subcutaneously or directly into the heart. If the seizures recur, the adrenalin should be repeated subcutaneously every hour or two or may be given in oil (1 cc. = 2 mg.) intramuscularly, every twelve to twenty-four hours.

In patients who experience frequent episodes of Stokes-Adams seizures, ephedrine 15 to 30 mg. (¼ to ½ gr.) or Paredrine 20 to 60 mg. (⅓ to 1 gr.) may be given orally three to five times daily in an effort to decrease the number of recurrences. When digitalis may be a contributing factor, this drug should of course be withdrawn.

OTHER ARRHYTHMIAS

Sinus tachycardia is usually associated with febrile or toxic conditions, congestive heart failure, or emotional or metabolic disturbances. There is no specific therapy other than that directed at the primary condition.

Sinus bradycardia, like sinus tachycardia, may be an incidental finding, especially in athletes and pregnant women, and usually requires no treatment. It is caused by an increase in vagal tone, a diminution in sympathetic tone, or both. If the rate falls below 40, dizziness and syncope may result, as in a person with carotid sinus syndrome. Actual cardiac standstill may occur. Usually, these cases respond to ephedrine in 25- to 45-mg. (⅜- to ¾-gr.) doses, or to atropine sulfate 0.6 to 1.2 mg. (1/100 to 1/50 gr.) by mouth. Atropine 0.6 mg. to 2 mg. (1/100 to 1/30 gr.) may be necessary subcutaneously or intravenously.

Premature beats may cause palpitation, precordial discomfort, and anxiety. These symptoms can usually be relieved by reassurance, rest, and sedation, but occasionally are sufficiently severe to require active treatment. They assume great importance when they precede the onset of paroxysmal tachycardia, especially during operations or after coronary occlusion.

A definite relationship has been found between anxiety states and episodes of premature beats. They as well as the distressing symptoms which occur during attacks are in some cases eliminated by adequate psychiatric therapy. If drugs are necessary to stop premature beats the physician should determine the site of origin of the ectopic beats before beginning therapy. Quinidine is usually successful in reducing the frequency of both ventricular and auricular premature beats. Pronestyl is most effective in stopping or preventing ventricular premature beats.

Medical Forum

Discussion of articles published in MODERN MEDICINE *is always welcome. Address all communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Medullary Nail for Leg Fractures*

QUESTION: When should intramedullary nailing be used?

Comment invited from
C. S. Venable, M.D.
J. Albert Key, M.D.
Leonard F. Peltier, M.D.
Carleton M. Cornell, M.D.
Leslie V. Rush, M.D.
Carlo Scuderi, M.D.
M. C. Cobey, M.D.
John C. Ivins, M.D.

► TO THE EDITORS: I think medullary nailing, described by Drs. Edwin F. Cave and J. E. M. Thomson, should be used preferably only in oblique fractures of the femur or tibia or of either bone of the forearm, particularly in the instance of fracture of both bones. Rarely is such a procedure necessary in fractures of the shaft of the humerus.

I fully concur in the admonition of Dr. Thomson that engagement of both ends in subcortical bone and supportive rests in plaster, including the knee above and the ankle below, is primarily essential, else only alignment without stability is had, with resulting delay and, far too often, nonunion. Prompt closed engagement in the fracture ends, which minimizes clotted blood, helps maintain the *p*H to the alkaline side and so promotes earlier bone regeneration, which otherwise is delayed or lost.

Nature's repair process demands the continued contact of like cells, so that like factors—skin, fascia, muscle, and bone—will live and be reproduced when in continuity. Without such closed approximation, the direct and uninterrupted development of osteoblasts will be retarded or interrupted. Regeneration of bone will be delayed or lost by the intervening development of fibroblasts and blood clot, with the production of fibrous tissue between the bone ends. Such a process results in a delayed or fibrous union. Likewise, a stimulated overgrowth of chondroblasts and scattered osteoblasts will result in the development of excess callus after local irritation (motion), which is the accompaniment of poor mobilization and delayed union.

In addition, an open reduction with or without internal fixation must be brought to a physiologic state with an uninterrupted fresh blood supply in which the *p*H in the region of new bone formation is of primary importance.

In the type of femoral lesions, cited by Dr. Cave, I concur in the

*MODERN MEDICINE, June 15, 1952, p. 103.

advantage of the procedure of intramedullary control, but again think that added closely impacted coaptation during the procedure is well worth while when, through such stabilized approximation, the *p*H is maintained on the alkaline side and osteoblastic inhibition is diminished.

C. S. VENABLE, M.D.

San Antonio

► TO THE EDITORS: Intramedullary nailing can be used when a surgeon qualified by training and experience to perform the operation is available with proper equipment.

The method is especially useful in transverse or short oblique fractures of the medial third of the femur or tibia but may be used in fractures which are oblique or comminuted or which are nearer either end of the shaft, provided there is enough bone in the shorter fragment to permit sufficient grip to maintain position. If the nail does not sit properly or if grip is insufficient, it may be enforced with a plaster cast.

In our experience with closed fractures, femoral nails are usually inserted at the time of open reduction of the fracture. Tibial nails are inserted after a closed reduction and under roentgen control. Humeral nails are similarly used and are usually inserted after open reduction. The fragment is fixed with a small wire loop to prevent distraction.

In compound fractures less than twenty-four hours old, the nail may be inserted at the time of the debridement, especially if the patient has had antibiotics. In neglected compound fractures, we believe that the wound should be debrided and closed and the nail inserted about ten days later if the wound is still clean. In old nonunited fractures the nail may be used in conjunction with bone grafts inserted after open reduction and revision of the bone ends.

In pathologic fractures, the nail is especially useful to avoid prolonged external fixation. It may be used in impending pathologic fractures to prevent fractures. We have also used it as a preventive measure in cases of "brittle bones."

J. ALBERT KEY, M.D.

St. Louis

► TO THE EDITORS: We employ intramedullary nailing as the method of choice for the internal fixation of transverse fractures of the middle third of the femur in adults. We have not hesitated to use this method in fresh compound fractures of the femur requiring internal fixation. The method is especially valuable in cases of femur fracture complicated by other fractures and injuries, and in pathologic fractures of the femur.

Before fixing pathologic fractures due to malignant disease, the site of metastasis should be irradiated with x-rays. At the time of nailing, this area should be excised.

We agree with Küntscher that fat embolism is the most serious complication to follow intramedullary nailing. We have had 1 death due

(Continued on page 132)

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Editorial: J.A.M.A. *149*:66 (May 3) 1952

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to fat embolism, and a 10% incidence of fat embolism occurring postoperatively in our cases. To minimize this danger, we use only nails of the "U" or cloverleaf design, avoiding solid nails. The nails are driven into the medullary canal slowly with at least thirty seconds between hammer blows to allow the increase in intramedullary pressure accompanying each blow to dissipate itself.

LEONARD F. PELTIER, M.D.
Minneapolis

► TO THE EDITORS: The articles by Drs. Edwin F. Cave and J. E. M. Thomson are excellent in describing the application and principles of technic in intramedullary fixation of femoral and tibial fractures. I have not had the extensive experience of the authors in this form of treatment.

Application of this procedure most certainly cannot be generalized, but, rather, each case should be assayed as an individual problem. Improved surgical technics and greater effectiveness of antibiotics have increased the useful field of application of intramedullary fixation. In my experience, early ambulation, with mobilization of joints and muscle reeducation, is a strong inducement for its use; besides, the economic advantages are considerable. In cases of multiple injuries this may be the procedure of choice by eliminating prolonged traction or undesirable casts, and by mobilizing a bed patient for treatment of other conditions.

I would like to stress that there are rather specific conditions in which this form of fixation should not be employed. Intramedullary fixation should *not* be used:

- Unless the hospital is equipped to maintain rigid aseptic technics, and has full auxiliary equipment available.
- By those who are not familiar with the technics and principles involved.
- In the presence of infection, not only local, but distant or systemic.
- In fresh compound fractures and, particularly, as an emergency procedure. Time must be allowed for the surgical preparation of the patient.
- When the fracture is too close to a joint which will not permit adequate purchase of fragments on the nail.
- When closed methods have been proved satisfactory in producing good end results.

Undoubtedly, intramedullary fixation of long-bone fractures will assume a more settled position among the time-tested methods of treatment.

CARLETON M. CORNELL, M.D.
New York City

► TO THE EDITORS: This discussion is based on medullary *pinning* in contradistinction to *nailing*. The conclusions were reached after operating upon 425 fractures by this method since 1936.

Medullary fixation is infinitely more complex than is generally appreciated. The important influence of dynamic forces is rarely mentioned. To ignore these dynamic

forces is to court disaster; properly to appreciate them opens an enormous field for the intelligent application of the principle.

The fractured extremity presents its own intrinsic forces in muscle pull to produce overlap and angulation. These forces are continuous. The surgeon, by instituting intelligent engineering principles, can resist these forces in all long bones, even near joints, to secure stable fixation and early function.

The advocate of the rigid nail, ignoring these principles, necessarily limits the scope to the midshaft of long bones where the narrow cavity is small and tubular. The nailing procedure becomes formidable for the patient and the surgeon because of the unnecessary trauma incident to open operation and the tight impaction of the rod in the marrow cavity.

Pinning, we have found, can be used advantageously in:

GENERAL

- Children, on rare occasions, when the deformity warrants interference (semiopen reduction)
- Aged patients, almost routinely, because most fractures can be pinned in closed or semiopen procedures with minimum trauma and shock
- Fresh compound fractures, almost routinely, as an immediate procedure. Immobilization of the bone lessens the spread of infection; the pin is well tolerated in infection. Pinning is delayed only in simple compound wounds.
- Comminuted, long oblique, and spiral fractures when combined with circular wires. Such fixation is usually stable.
- Delayed union. Healing is encouraged by correction of existing angulation and by the force of the muscle pull because the bone can telescope freely upon the pin.
- Nonunion. Stable fixation is maintained for graft while permitting active function.
- Malunion, even near joints

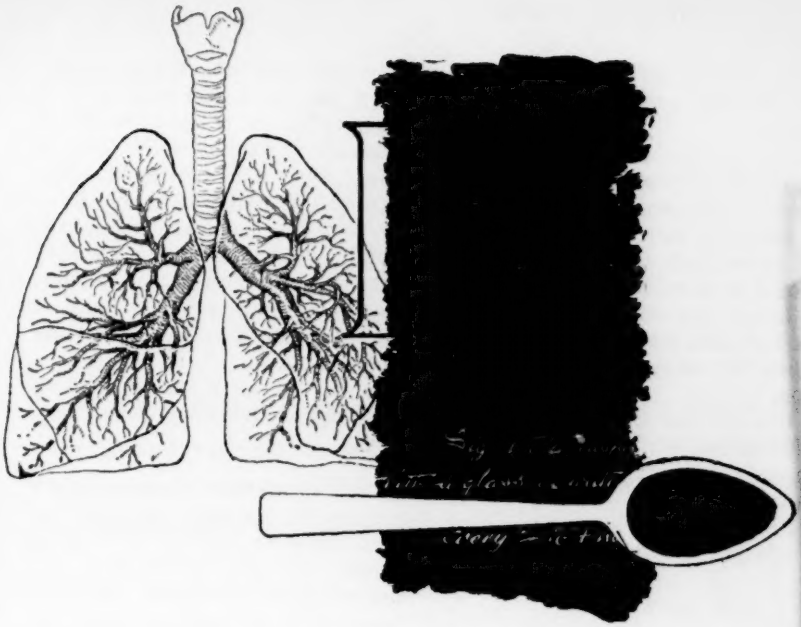
UPPER EXTREMITY FRACTURES

- Clavicle, desirable in adult males because of comfort and early function
- Neck of the humerus in the aged, as a routine closed procedure to prevent deformity and permit early function
- Comminution of head and neck (closed pinning)
- Shaft of humerus, routinely, in adults (semiopen)
- Condyles of humerus, with double pins when deformity warrants interference (open)
- Olecranon, double pins (open)
- Radius and ulna shafts, almost routinely in adults
- Colles', almost routinely in adults, particularly in the aged (closed, immediate function)
- Metacarpals and fingers in adults, when deformity warrants (usually closed), especially indicated in compound fractures

LOWER EXTREMITY FRACTURES

- Shaft of femur, upper three-fourths; single pin driven down from the trochanter (semiopen), routinely. Contraindicated in trochanteric region

Lower one-fourth, using double



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pins, curved, driven upward from the condyles (usually closed), routinely

• Tibia, upper third; double pins driven down from condyles (closed), almost routinely.

Mid half, single curved pin driven down from above the tubercle, closed or semiopen, routinely.

Lower, curved pins through malleoli of tibia and fibula as indicated when deformity warrants intervention

• Fracture dislocation, curved pins through malleoli of tibia and fibula as indicated when deformity warrants intervention

• Lower fibula, rarely indicated, single pin is driven upward

LESLIE V. RUSH, M.D.
Meridian, Miss.

► TO THE EDITORS: Intramedullary nailing should be used in the following conditions:

1] Transverse or comminuted fractures of the middle third of the femur

2] Nonunion in the middle third of the femur associated with an onlay bone graft

3] Metastatic fractures of the femur in elderly people, so that the patients can be up and about with a minimum of pain.

I have had a moderate amount of experience with intramedullary pinning and have limited its use to the above cases. We have tried it in various other parts of the body without too much success. Other methods are suitable elsewhere.

CARLO SCUDERI, M.D.
Chicago

► TO THE EDITORS: The intramedullary nail fills a real need when a fracture fixation is not adequate or with cortical fixation in the form of plates. I use nails for femur, tibia, or humerus. They definitely have an indication, but that indication is limited. Nails should only be used when one has to disregard the damage to the intramedullary bone in the reduction, fixation, and healing of fractures.

M. C. COBEY, M.D.
Washington, D. C.

► TO THE EDITORS: Intramedullary nailing has become a popular and very effective method of treating certain new and old fractures and other lesions affecting the long bones. This procedure is admirably suited to the treatment of lesions of the shaft of the femur and, to a lesser extent, of similar lesions in the shaft of the tibia.

Drs. Cave and Thomson have clearly stated the indications for the use of this method in femoral and tibial lesions and have described their technics. Fractures of the long bones of the arm and forearm are generally better treated by other methods, although rarely, even in these nonweight-bearing bones, intramedullary fixation will be the treatment of choice.

Thus the indications for the use of this technic have become fairly well standardized. The reports of good results are appearing in the professional literature in ever increasing numbers and the myriad new devices designed to give intramedullary fixation are being widely

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1. Covalt, N. K.: Completed Medicine—Rehabilitation, J.A.M. Women's A., 7:9 (Jan.) 1952, p. 13.

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and enthusiastically advertised by many of the surgical supply firms. As a result, many are being tempted to use this form of surgical treatment without adequate training to meet complications.

No one should undertake intramedullary fixation without first having studied the report by Watson-Jones and associates which appeared in the *Journal of Bone and Joint Surgery* (32-B: 694-729, 1950). In their summary it is stated, "The method requires technical experience and knowledge and is not suited to inexperienced surgeons or surgeons with little fracture material at their disposal."

Intramedullary nailing at the Mayo Clinic has been confined almost exclusively to the treatment of various lesions of the shaft of the femur. The cases are carefully selected. In addition to the usual preoperative preparation of the patient for a major operation, certain special preparations are made.

Scanograms are made of the opposite femur from which the length of the bone and width of its medullary canal can be directly measured. A nail of suitable length is then prepared and is inserted under roentgenographic control. Nails of varying widths and lengths are sterilized and available but should not be required if thorough preparations have been made. Hack saws, vise-grip pliers, and other instruments required in case of difficulty are at hand. Postoperative management is individually designed to suit the particular case.

In summary, I wish to quote from Hugh Smith's 1950 report of the Committee on Fractures and Traumatic Surgery of the American Academy of Orthopaedic Surgeons: "This technic, if applied to improperly selected cases, or if inefficiently or unskillfully carried out, offers more possibilities of trouble than any other."

JOHN C. IVINS, M.D.
Rochester, Minn.

Why Do a Gastric Analysis?*

QUESTION: How useful for diagnosis is analysis of gastric contents? Is one method preferable?

Comment invited from
George B. Jerzy Glass, M.D.
Erwin Levin, M.D.

► TO THE EDITORS: The paper by Drs. J. L. A. Roth and H. L. Bockus draws the attention of the medical profession to the merits of a diagnostic technic which during recent years has shown a progressive trend toward oblivion. Actually, many physicians are satisfied in their diagnostic endeavors by taking a good history and supporting it by a thorough radiologic examination of the stomach and, in some instances, by gastroscopy. These technics omit one of the most important diagnostic phases of the study of the stomach: its secretory function or dysfunction.

Drs. Roth and Bockus have clearly shown that the study of the gastric acid secretion after stimulation with histamine, caffeine, or insulin has its own merits in diagnosis of gastric pathology and, at times, in

MODERN MEDICINE, June 1, 1952, p. 95.

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Postgrad. Med.,
8:312, 1950

prognosis. It seems to us, however, that the value of gastric secretory study can be further enhanced if emphasis is shifted from the exclusive determination of gastric acidity to the comprehensive study of all gastric secretory components.

Nowhere in modern medicine is the functional study of an organ limited to the examination of the secretion or excretion of only one product of its metabolism. In contrast to the comprehensive chemical study of the function of the liver or kidney, the emphasis in gastric study is placed routinely on one secretory element—hydrochloric acid. The information obtained by this limited procedure is not relevant in many instances of gastric pathology. The blame, however, was placed not upon the restriction of study to only one gastric secretory product and a single mode of its stimulation but, unjustly, upon the entire method of gastric analysis.

It appears to be forgotten that the only correct approach to the examination of the gastric secretion is that used in the functional studies of other organs. Without comprehensive examination of each of the secretory products of the gastric mucosa and their particular products, information on gastric secretory function must be incomplete.

The secretory patterns of the gastric mucosa depend on central nervous, general humoral, as well as local hormonal mechanisms; particular secretory elements in the gastric mucosa are dependent upon them to a different degree. Consequently at least two different stimuli, especially vagal and humoral, are necessary for complete gastric secretory study. Histamine, alcohol, or caffeine tests only the humoral phase of gastric secretion and thus is concerned mainly with secretory activity of parietal cells.

In man, the secretion of the nonparietal secretory products of glandular origin, such as pepsin or mucoprotein, is affected very little by the humoral stimuli. It is, however, strongly dependent upon central vagal stimulation. Their secretion, therefore, can be best tested by intravenous administration of 12 to 20 units of insulin. Since the insulin hypoglycemia represents the most comprehensive stimulus for the study of gastric secretion, the usefulness of insulin is not restricted to the study of the completeness of bilateral vagotomy, but finds application in testing the secretory capacity of all secretory elements of the gastric mucosa—parietal, peptic, neck, and, to some extent, the surface epithelial cells of the stomach. If used concomitantly with one of the humoral stimulatory tests, such as histamine or caffeine, the usefulness of insulin in the study of gastric secretion and in gastric diagnosis is vast, as will be shown by the following examples:

• In the initial stages of gastric atrophy there may be an impairment of the secretion of only one secretory product of the stomach; this may be not the acid, but pepsin or glandular mucoprotein. This dissociation may be important for the diagnosis of a beginning secretory failure of the stomach and can be

(Continued on page 144)

the double antirheumatic.

detected only by the insulin test and quantitation of pepsin or mucoprotein, together with that of the gastric acidity.

Glandular mucoprotein seems to be closely related to Castle's intrinsic hematopoietic factor, although it is yet unknown whether it is Castle's factor itself, or rather its carrier, or apoenzyme. From preliminary data, it appears that the quantitation of mucoprotein in the gastric juice following insulin is of value for determination of the probability of future development of megaloblastic anemia and evaluation of its susceptibility to oral treatment with vitamin B_{12}.

• The study of glandular mucoprotein secretion with insulin tests appears to have definite value for evaluating the completeness of vagotomy, especially in cases in which vagotomy was associated with gastric resection and in which no acid response to insulin was obtained. In these instances, the negative acid response may depend not only on severance of vagi nerves but also on neutralization of the acid by the regurgitated duodenal content and bile, on abolition (by resection of the antrum) of the hormonal gastric acid secretion stimulating mechanism, or on the postresection achlorhydria, due to atrophic lesions in the gastric mucosa.

If the histamine test shows the presence of acid, and the secretion of mucoprotein is increased after insulin administration, then the absence of the acid response to insulin does not depend upon severance of vagi, but merely upon the neutralization achlorhydria (regurgitation of bile and duodenal secretion) or absence of the gastric antrum due to associated gastrectomy. The preservation of the secretory response of glandular mucoprotein to insulin in these instances indicates that the vagi nerves were not completely severed. On the other hand, if not only acid but also mucoprotein response to insulin is abolished, but preserved after histamine, then complete severance of vagi nerves can be postulated.

Finally, if both acid and mucoprotein response are absent following insulin, but both are also absent following stimulation by histamine, then no inference regarding the completion of vagotomy can be made, since this abolition of the response to histamine and insulin indicates an associated postgastrectomy atrophy of gastric mucosa. The absence of the acid as well as mucoprotein response to gastric stimulatory tests can depend upon this atrophic lesion and cannot be necessarily related to vagotomy.

The study of the acid response following histamine and insulin may in some instances reveal dissociation between the positive acid response to histamine and a weak or absent acid response to insulin. In these instances an organic lesion in the distal end of the stomach is frequently present, either in the form of an antral gastritis, prepyloric ulcer, or carcinoma. The weak acid response to insulin apparently depends here upon the abolition of the secretion of the hormonal mediator in the diseased antrum which is needed to obtain a full secretory response of the acid

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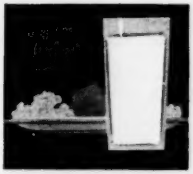

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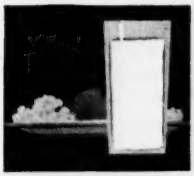

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secretion to the central vagal stimulation.

• Simultaneous determination of mucoprotein and acid secretion following intravenous administration of insulin usually shows a concordant pattern of response of both these glandular secretory products. In some instances, however, a dissociation between them may be observed which is characterized by a positive response of mucoprotein and a weak or absent response of hydrochloric acid. Since the fully normal acid response to insulin requires preservation of both the antrum and the corpus of the stomach, and that of mucoprotein requires preservation of corpus or fundus only, this dissociation may again indicate either absence of the antrum or an antral lesion, as discussed above.

These examples have been cited to stress the usefulness of the comprehensive gastric secretory study for gastric diagnostic problems. The insulin test is completely harmless. Since the insulin test may be added immediately after histamine or caffeine stimulation, and since determination of mucoprotein (especially in its volumetric modification) is relatively simple, the described gastric secretory study is entirely suitable for routine use.

GEORGE B. JERZY GLASS, M.D.
New York City

► TO THE EDITORS: A complete understanding of the value of gastric analysis in clinical medicine is lacking.

Properly carried out, a gastric analysis may tell us if the stomach empties properly or is capable of secreting acid and if there is hypoacidity, normal acidity, or hypersecretion of acid. A gastric analysis also evaluates completeness of vagotomy; in certain instances cytologic studies may prove the presence of gastric malignancy. In no instance does a gastric analysis in itself give a diagnosis, but the procedure should be used in conjunction with other procedures, such as a complete history and physical examination, roentgen and gastroscopic examinations, when indicated, and other laboratory tests.

In determining the presence or absence of abnormal gastric retention, the following procedure is of great help: The patient is placed on a program in which he receives 90 cc. of "half and half" every hour on the hour from 7 A.M. to 7 P.M. and 2 gm. of calcium carbonate every hour on the half-hour from 7:30 A.M. to 7:30 P.M. and at 8, 8:30, and 9 P.M. At 9:30 P.M. the stomach is completely emptied with an Ewald tube.

If the amount aspirated is between 2 and 3 oz., normal emptying is occurring. If greater amounts are obtained, abnormal gastric retention is present. In these individuals the procedure may be carried out daily over a period of one to two weeks. If the amount continues to decrease and eventually becomes normal, the assumption is that the obstruction was temporary and is subsiding. However, if large amounts are continuously aspirated, permanent obstruction usually due to cicatrix is present.

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* Cronheim, G., Justice, T. T., and King, J. S., Jr., A New Approach to Increasing Tolerance of Oral Aminophylline—to be published.
* Justice, T. T., Jr., Allen, G., and Cronheim, G., Studies with Two New Theophylline Preparations—to be published.

When pernicious anemia or a gastric ulcer is present, it is absolutely necessary to determine if the stomach is capable of secreting acid. Histamine dihydrochloride (0.01 mg. per kilogram) and 3-beta aminoethylpyrozole dihydrochloride are the most potent parietal cell stimulants. One cannot assume the presence of true achlorhydria unless a fractional test is performed with either one of these agents. In some instances, it is necessary to perform the test on more than one occasion in order to prove the presence of true achlorhydria. The presence of free hydrochloric acid rules out pernicious anemia, and the failure to demonstrate acid on repeated occasions in the presence of a gastric ulcer indicates that the ulcer is malignant.

For routine purposes, the determination of the fifteen-minute fractionated one-hour morning basal secretion is sufficient. Whenever free acid is present in one or more of the fifteen-minute specimens, no further information is obtained by using one of the more elaborate tests. Usually the absence of acid in one or more of the fifteen-minute specimens eliminates the possible existence of an active duodenal ulcer.

During the past several years interest has arisen in the cytologic study of gastric juice. With this, one has a new tool in the diagnosis of malignancy. However, here again, a negative test does not necessarily eliminate gastric neoplasm.

ERWIN LEVIN, M.D.

Cleveland

Doctor to Doctor

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Vesicourethropexy for Stress Incontinence*

QUESTION: What is the best method for correction of stress incontinence?

Comment invited from
Albert F. Lee, M.D.
Arnold H. Kegel, M.D.
S. Richard Muellner, M.D.
Roger W. Barnes, M.D.

► TO THE EDITORS: Dr. L. H. Doolittle's article on vesicourethropexy for stress incontinence presents another interesting approach to the relief of the embarrassing, disturbing, and depressing symptoms of the incontinent female bladder. Since the original Kelly operation, various technics have been introduced utilizing tendons, nonabsorbable sutures, wires, plates, suspensions, pessaries, and the vaginal exercises of Kegel.

Success varies with the different procedures and I have been best pleased with a surgical repair which avoids fixing the urethra to the symphysis pubis, abdominal muscles or fascia, or other tissues which do not join in the usual physiologic act of female voiding. I treat the urethrocele and detached urethra by dissecting out the fascial tube of the urethra and the vesicovaginal fascia and then repairing the defects in these tissues by plication and reconstruction of the urethra. The relaxed "voiding" incontinent position is thus changed to the "nonvoiding" continent position. I have never seen a urethra which could not be successfully repaired in this manner—even though several of our problem patients have had one or more prior operations.

I object to fixing the hernia repair of the urethra to the symphysis just as I would object to fixing a groin hernia repair to the bones of the pelvis. The urethra which is fixed in repair to the symphysis pubis, in my experience, rarely functions satisfactorily. These women often have difficulty in starting the stream, suffer pain, and more often have persistent incontinence.

The urethra which is fixed to the rectus muscles by sling or sutures will commonly make the woman assume an extreme crouch position to empty her bladder and, when upright, she usually has pulling, tense suprapubic pain.

Nevertheless, I compliment and respect Dr. Doolittle for his contribution and interest in this stimulating problem of female stress incontinence.

ALBERT F. LEE, M.D.
Seattle

► TO THE EDITORS: Failure of muscular function in the region of the bladder outlet is the chief cause of urinary stress incontinence. The simplest and most direct therapy for the relief of incontinence is to teach patients the correct use of the pubococcygei muscles which surround the bladder neck. This procedure can be successfully employed in general office practice.

Muscle education and resistive exercise have been applied to the pubococcygeus muscle in more than

(Continued on page 154)

*MODERN MEDICINE, June 15, 1952, p. 120.

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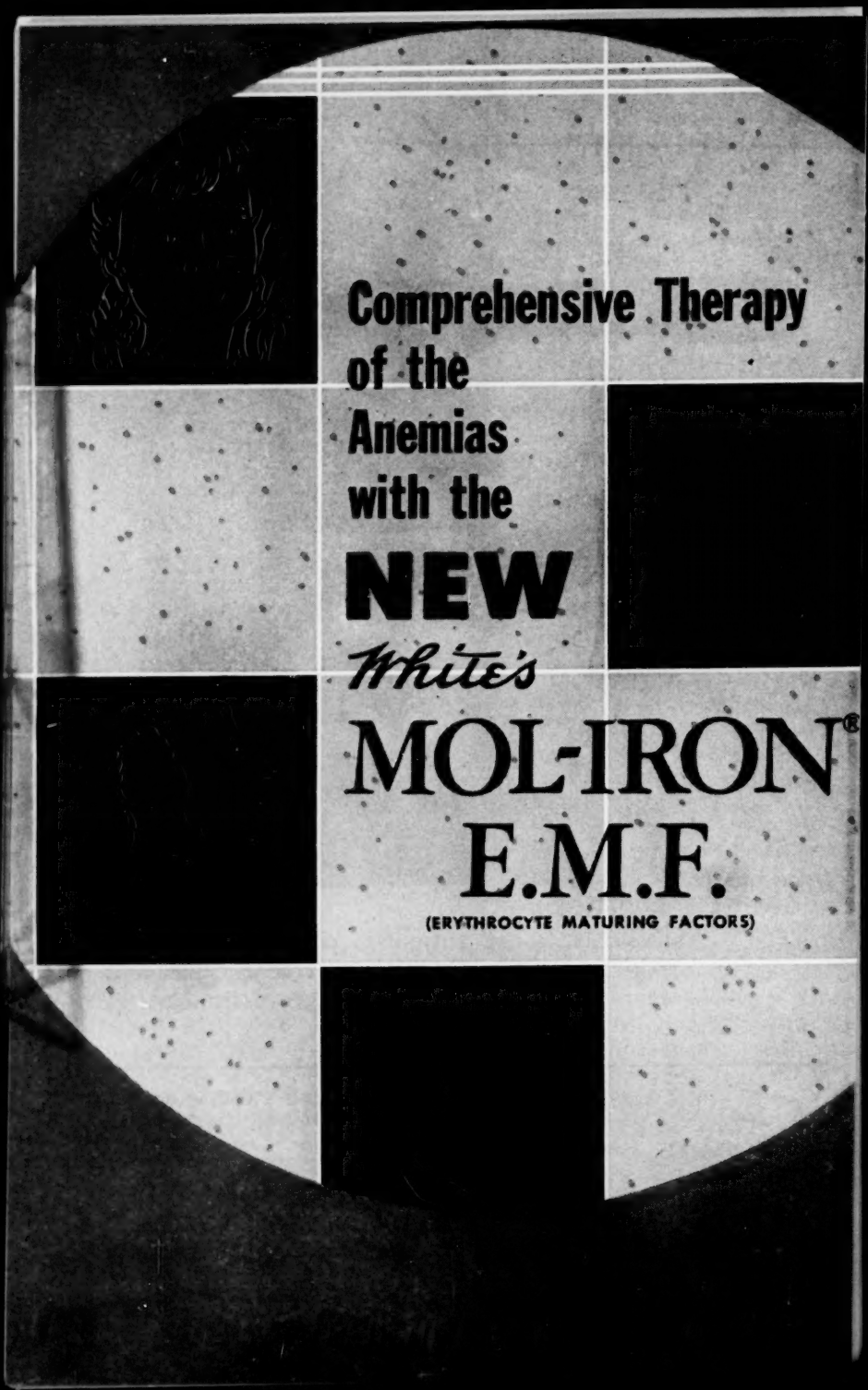
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1,000 patients suffering urinary stress incontinence. In this series it was not necessary to employ complicated indirect procedures such as surgical plication of fasciae, urethra, and bladder. It must be remembered that every fascia depends upon its muscular attachments for viability, tone, function, and tensile strength.

Women suffering urinary stress incontinence often give a history of bladder weakness since childhood. Incontinence occurs after simple as well as difficult deliveries, after cesarean sections, and in nulliparas. A carefully taken history often reveals that childbirth, surgery, menopausal changes, illnesses, and even senility are merely precipitating factors in the course of incontinence. The pubococcygeus muscle in such instances is thin and sagging with contractile strength, 0 to 3 mm. of mercury measured with the apparatus known as the perineometer (normal, 20 to 60 mm.). In no instance in our series was it possible to relieve incontinence until function of the pubococcygeus muscle was improved.

Treatment consists of the following steps:

1] Identification of contractions of the pubococcygeus muscle for the patient

2] Instructions in active exercise of the pubococcygeus, checking at regular intervals to make certain that the patient is not using extraneous muscles, such as those of abdominal, gluteal, and introital regions

3] Use of the perineometer, which is especially devised to improve function of the pubococcygeus and which saves considerable time and effort for physician and patient. With the aid of the instrument, the patient is able to see when and how strongly perivaginal muscles are being contracted. The vaginal portion of the perineometer is designed to permit exercise against increasing resistance of muscles in the entire circumference of the vagina.

Approximately 75% of all cases of urinary stress incontinence are of the simple type in which urine is lost only with coughing or straining. Practically all such patients are relieved by adequate exercise therapy in six weeks.

Severe incontinence, in which urine dribbles constantly, requires more time and effort. In some instances, active exercise, over a period of six to twelve months, has been necessary to obtain relief. Failures (16%) in the latter group are due to complicating factors such as previous radical surgery in which pubococcygei muscles have been severed, massive scar tissue, and neurologic disease involving bladder function.

ARNOLD H. KEGEL, M.D.
Los Angeles

► TO THE EDITORS: A successful operation to correct urinary stress incontinence in women must be based on sound physiologic principles. The problem is particularly difficult, since one must not only correct an autonomic defect but must restore physiologic function in addition. This makes the opera-

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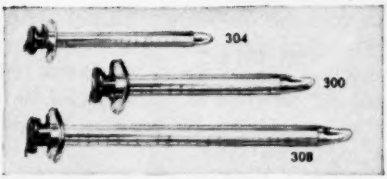
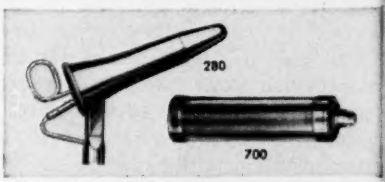
The importance of *complete* rectal examination to detect possibly precancerous lesions or abnormalities is now widely recognized, and more and more physicians are equipping themselves with rectal instruments. General practitioners are learning what proctologists have long known: that Welch Allyn rectals are superbly designed and made for efficient diagnosis and treatment, ease of use and durability. A particular favorite is this No. 318 set, priced at $169.50, whose contents are shown in detail below. **No. 318A, with built-in aspirator $179.50**



No. 308 sigmoidoscope, No. 300 proctoscope and No. 304 infant proctoscope, distally illuminated for brilliant, glare-free field of view, with tapered and curved obturator tips for easy passage.



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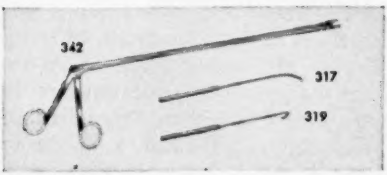

No. 342 biopsy punch, a well balanced, stainless steel instrument. No. 317 rectal probe and No. 319 rectal hook.

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tive repair of urinary stress incontinence somewhat unique.

None of the operations advocated to date quite meets this requirement. For the maintenance of urinary continence, the vesical neck needs the firm support of the fibers of the pubococcygeus muscle. To initiate the urinary stream voluntarily, however, the vesical neck must be free to descend in the pelvis.

All operations designed for relief of incontinence to date are based on the reestablishment of firm vesical support, without due allowance for its need of mobility. It is the normal effort to push the vesical neck down with each micturition which causes the eventual breakdown of the primary repair and thus leads to recurrence of the incontinence years later. Recurrence of incontinence five or more years after the original "operative cure" is responsible for the constant stream of new operations to relieve this distressing condition.

While there is no unanimity of opinion on the best operative procedure for urinary stress incontinence, most surgeons dealing with this problem will probably agree to the following general principles:

• If the incontinence is mild and there have been no previous operations for its relief, the Kelly operation or one of its modifications is preferred. This is a simple procedure and has a good chance of success in many instances.

• In moderately severe or severe incontinence, a simple type of vesical neck fixation through the anterior vaginal wall is doomed to failure, and a sling operation, using fascial strips to support the vesical neck, gives more lasting results. Depending upon the preference of the individual surgeon, the choice lies between the Aldrich operation, the Studdiford operation, and the procedure advocated by Millin-Read. The Marchetti operation, which attempts to achieve the same result by silk sutures, is as yet too new. Moreover, long range follow-up reports are still too few to evaluate it properly.

S. RICHARD MUELLNER, M.D.
Boston

► TO THE EDITORS: The medical treatment of stress incontinence will cure some patients afflicted with this condition and will result in marked improvement in others. It should be tried in most cases before correction by surgery is advised.

The patient exercises the urethral sphincter and vaginal and anal muscles by alternate contraction and relaxation. This can be done at any time—while she is about her work, or sitting in a chair, or lying down. She is instructed to voluntarily contract all the muscles as she would in making an effort to hold the urine when a desire to void occurs. An apparatus, such as a perineometer, by which the strength of vaginal contractions is registered on a dial that the patient can see, may help her to contract the right muscles; it also gives her encouragement when she notes improvement in contracting power.

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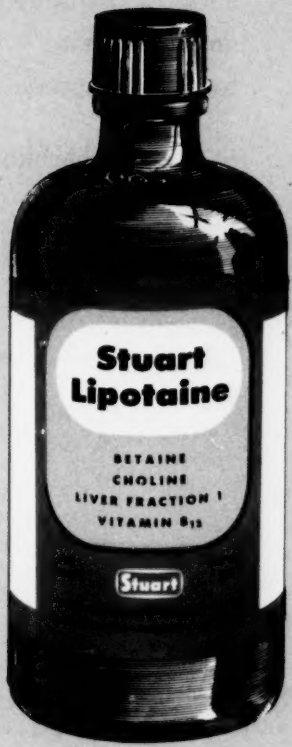

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*Vitamins: A, 1700 USP units; D, 170 USP units; C, 25 mg.; B_1, 1 mg.; B_2, 1 mg.; Niacin Amide, 10 mg.; B_6, 0.15 mg.; B_{12}, 1 mcg.; Calcium Pantothenate, 1.5 mg. Minerals: Calcium, 40 mg.; Phosphorus, 30 mg.; Iron, 3 mg.; Copper, 0.25 mg.; Iodine, 0.05 mg.; Cobalt, 0.167 mg.; Manganese, 0.33 mg.; Zinc, 0.1 mg.

Stuart

rent applied to the vulva is an additional aid to the patient who is exercising the pelvic sphincter muscles. One electrode is placed under the vulva with the patient sitting upon it, and the other electrode on the back. Treatment for thirty minutes daily or every other day helps many patients to regain sphincter control, making surgery unnecessary.

Surgical correction is indicated when medical treatment is not effective. Vesicourethropexy as described by Marshall has been, in our experience, the most effective method of curing stress incontinence. The cases must be carefully selected. It should not be done on patients who have residual urine or a neurologic lesion.

ROGER W. BARNES, M.D.
Los Angeles

A Second Look in Cancer Surgery*

QUESTION: Is reoperation advisable for a second look some months after a primary operation for visceral cancer?

Comment invited from Carman Weder, M.D.

► TO THE EDITORS: Surgical failures in the treatment of cancer, especially of the gastrointestinal tract, are all too common and any method which will increase the number of cures is always welcome. The experimental studies of Drs. Owen H. Wangensteen, F. John Lewis, and Lyle A. Tongen using the "second look" may enlighten us on the mode and rate of growth of various tumors of the intestine. It does not appear from our present knowledge of cancer that it will contribute much to the over-all cure rate.

If the radicalism of the primary procedure is limited by anatomic factors it seems unlikely that these will have changed on the second look. The removal of isolated involved nodes does not at present appear to be rational therapy.

Before this work can be accepted for general use, several questions will have to be answered:

- By how much is the salvage increased?
- What types should be subjected to this procedure? Careful correlation of site, gross type, histologic grade, and extent of spread with the increase of life span is necessary.
- When should the second look be done?
- What economic factors are involved?

To answer these questions the results of many cases must be assessed in the light of statistical discipline. This is best done in university centers.

At the present time there is insufficient evidence to advocate the use of this method other than on an experimental basis.

CARMAN WEDER, M.D.
Saskatoon, Sask.

*MODERN MEDICINE, Feb. 1, 1952, p. 90.

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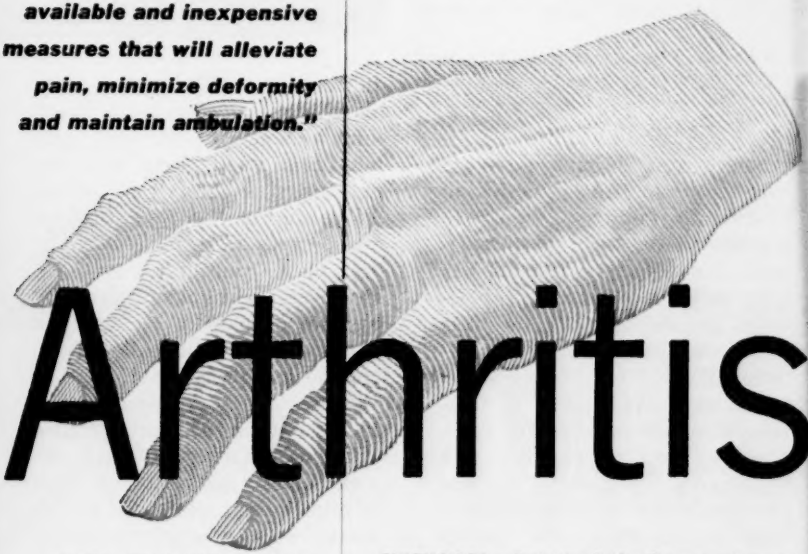
Pruce, A. M.: J. Med. Ass. Georgia 40: 101, 1951



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Diagnostix

Here are diagnostic challenges presented as they confront the consultant from the first clue to the pathologic report. Diagnosis from the Clue requires unusual acumen and luck; from Part II, perspicacity; from Part III, discernment.

Case MM-225

THE CLUE

ATTENDING M.D: I have a patient with an interesting neurologic problem for you to see today. He is a 58-year-old high school principal. For several years he has been under medical care for arterial insufficiency of the legs manifested by intermittent claudication.

VISITING M.D: When did the neurologic symptoms appear?

ATTENDING M.D: Around nine months ago. The initial episode apparently was a slight cerebrovascular accident. He awoke from sleep one morning with weakness of the right arm and for a short time was unable to speak. These symptoms cleared after several hours but he has had many recurrences of similar nature.

PART II

VISITING M.D: Has he ever lost consciousness?

ATTENDING M.D: Never. However, each time symptoms have been present upon wakening from sleep in the morning. He has no trouble throughout the day.

VISITING M.D: Any other symptoms? Any residual paralysis?

ATTENDING M.D: There have been about eight attacks in all. Each time weakness of the right arm has been noted along with the temporary inability to speak. Twice the right leg was involved and on one occasion he was unable to see out of his left eye. However, permanent disability has not developed.

VISITING M.D: Are the attacks becoming more frequent?

ATTENDING M.D: Apparently not. In fact, he had the most trouble in the month after the initial episode. Lately, the symptoms seem to clear more rapidly and the interval between attacks is longer than before.

VISITING M.D: I take it that headache has not been a prominent symptom and that convulsions, generalized or local, have not occurred?

ATTENDING M.D: That is correct. I have described all the symptoms.

VISITING M.D: You say that the patient has been having intermittent claudication. Does he take any vasodilators?

ATTENDING M.D: His physician's report did mention that a vasodilating drug was tried for a brief period about the same time that the patient's neurologic symptoms appeared. Can you re-

late that to the present complaints? I was about to prescribe vasodilators again.

VISITING M.D: If we are dealing with the condition I am considering, vasodilating drugs are contraindicated. What diagnosis are you entertaining?

PART III

ATTENDING M.D: Well, the lack of any residual signs or symptoms would seem to me to be against a diagnosis of organic cerebrovascular disease. Furthermore, the patient has hypertension, and such patients have transient cerebral symptoms caused by vasospasm of the cerebral vessels.

VISITING M.D: What is the patient's cardiac status?

ATTENDING M.D: His blood pressure is 168/90 mm. of mercury. The retinal vessels reveal moderate sclerosis but no spasm. The large peripheral arteries seem slightly stiffened, but all are patent. The heart is slightly enlarged in the region of the left ventricle as observed by fluoroscope. The electrocardiogram is normal.

VISITING M.D: I agree that the complete clearing of symptoms is strongly against a diagnosis of cerebrovascular accident of any magnitude. Further, the concept of cerebral vasospasm so often used in explaining mild cerebral attacks may well be in error. Evidence is appearing that cerebral vessels are capable of little if any spasm. Recurrent slight neurologic symptoms in hypertensive patients may be the result of multiple small thromboses.

ATTENDING M.D: Is that what you think this patient has?

VISITING M.D: No. I would hesitate to label this man as hypertensive. He may have atherosclerosis. Let's examine him.

ATTENDING M.D: *(After leaving the patient's room)* What were you doing with the ophthalmoscope?

VISITING M.D: I was observing the vessels of the left fundus while pressing on the right carotid artery. Nothing happened.

ATTENDING M.D: But when you briefly compressed the left carotid artery, his right arm became weak for several minutes.

PART IV

VISITING M.D: Yes. This man has obliterative atherosclerosis of the left internal carotid artery and his circle of Willis fails to provide adequate circulation from the opposite side. Often, fundal vessels on the involved side narrow when the opposite carotid is compressed or when the eye is pressed.

ATTENDING M.D: Why didn't that occur here?

VISITING M.D: I believe it is an encouraging sign of developing collateral circulation from the external carotid artery through the ciliary and meningeal vessels.

ATTENDING M.D: Why not use vasodilators?

VISITING M.D: Vasodilators too often lower the blood pressure or at least cause postural hypotension. I believe this man will do well enough without our help.

"When ... in Doubt"

"Think of Gout"[1]

"Gout is not a rare disease," states Kauffmann[1], "as several hundred thousand people are suffering from this malady in the United States . . . Nevertheless, the diagnosis is very often missed and confused with other forms of arthritis. The easiest way to make a correct diagnosis is the therapeutic test with Colchicine, which will in most of the cases relieve an acute attack of gouty arthritis . . ."

Like other investigators, he suggests maintenance doses of Colchicine as well as salicylates.

Of the use of salicylates, Gutman[2] states: "Adjuvant analgesics, particularly salicylates, are employed especially when residual stiffness of joints is present . . . As has long been known, salicylates effectively increase urinary uric acid excretion . . ."

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1. Kauffmann, F.: American Prac. 2:146-150 (Feb.) 1951.
2. Gutman, A. B.: The Bulletin of the N. Y. Acad. M. 27:144-164 (March) 1951.

Modern Medicine to Honor 10 Doctors

readers urged to submit recommendations

PROGRESS in medicine is largely dependent upon the cumulative force of many small advances. Spectacular discoveries, such as penicillin and cortisone, are the exceptions. The Flemings, Henches, and Kendalls receive the acclaim that is their due, but often overlooked are the men doing significant and necessary work that does not lend itself to dramatic demonstration.

The Editors of *Modern Medicine* plan to give recognition to 10 physicians whose work has contributed to the advancement of medicine. Consideration will be given to individuals who have made a specific contribution during the past year and to those whose efforts have been cumulative over a period of years. Persons in teaching and research institutions as well as those in private practice will be eligible.

Dr. Alvarez, Editor-in-Chief of *Modern Medicine*, urges readers to send in nominations, using the coupon below. Additional nominations may be made on plain sheets of paper attached to the coupon.

The winners of the Modern Medicine Distinguished Achievement Awards will be announced in *Modern Medicine* January 1, 1952.

Walter C. Alvarez, M.D., Editor-in-Chief
Modern Medicine
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I recommend _____ M.D.

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Nominator Nominator's Address

BASIC SCIENCE *Briefs*

Metabolism

Iron Absorption

Stores of body iron may be a controlling factor in iron absorption. Persons in good health or with hemochromatosis take up 1 to 16% of radioactive Fe-59 in oral doses, and the same is true of anemic subjects without iron deficiency, but 20 to 60% of the amount given is absorbed by an iron-depleted group, find Dr. R. B. Chodos and associates of the Cushing Veterans Administration Hospital, Framingham, Mass.

Federation Proc. 11:411, 1952.

Antibiotics

Tubercle-specific Poison

Antibacterial action of the isonicotinic acid derivatives that are useful in tuberculosis may be partly ascribed to action on the respiratory enzymes of the tubercle bacillus. Isonicotinic acid hydrazide in concentrations as low as 10 μg. per cubic centimeter reduces oxygen consumption and catalase activity of virulent strains of human tubercle bacilli; 1,000 μg. per cubic centimeter reduces oxygen consumption 73% and inhibits 87% of the catalase activity. In vitro experiments by Dr. Joseph D. Aronson and associates of the University of Pennsylvania, Philadelphia, show that 1-isonicotinyl-2-isopropylhydrazine produces only a slight reduction of oxygen consumption at a concentration of 1,000 μg. per cubic centimeter. The isopropyl derivative does not inhibit catalase; 1,000 μg. of the isopropylhydrazine per cubic centimeter has the same effect on oxygen consumption as 10 μg. of isonicotinic acid hydrazide. Neither compound has a direct inhibitory effect on succinic dehydrogenase.

Proc. Soc. Exper. Biol. & Med. 80:259-262, 1952.

Excretion

Renal Function in Diabetic Coma

Decreased renal clearance of mannitol, p-aminohippurate, and urea accompanying diabetic coma usually returns quickly to normal, but azotemia may progress despite correction of water and electrolyte deficits. Dr. Lionel M. Bernstein and associates of the University of Illinois and Cook County Hospital, Chicago, believe that the alteration in kidney function is caused by dehydration with associated circulatory disturbance. When the nitrogen abnormality persists, the renal ischemia has apparently produced a reversible lesion similar to that found in lower nephron nephrosis, but less severe and unaccompanied by initial oliguria.

J. Clin. Investigation 31:711-716, 1952.

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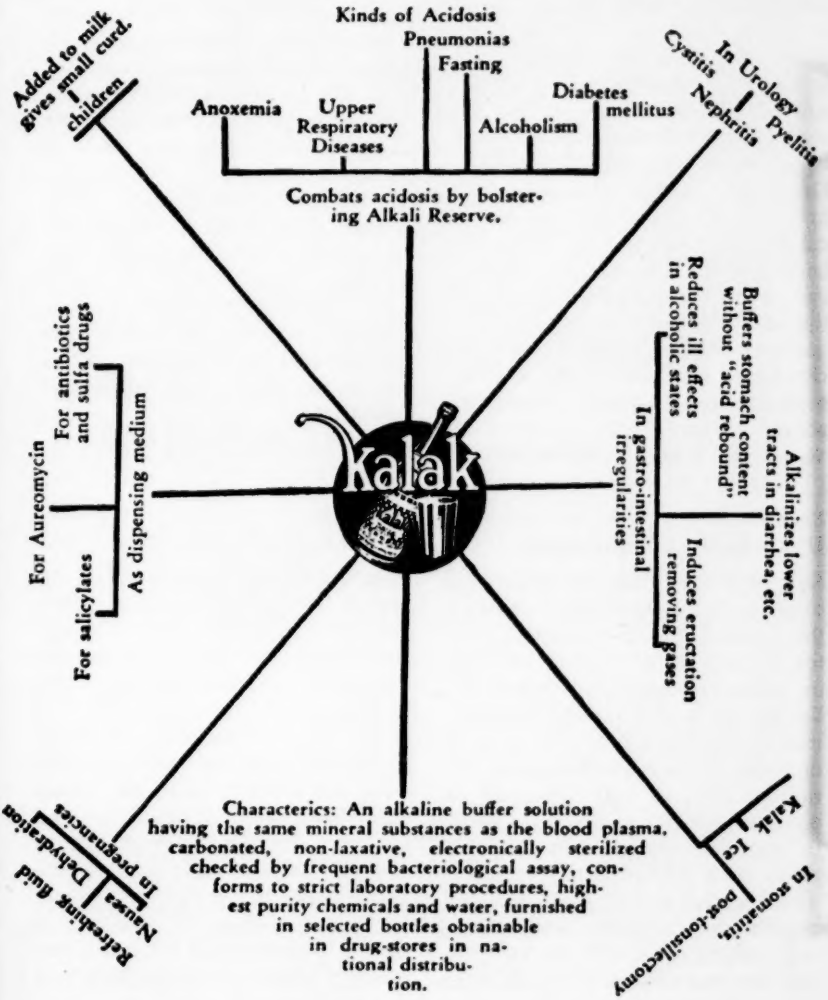

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Virology

Virus Suppression

Growth of influenza virus A and B is inhibited in vitro in the chorioallantoic membranes of chick embryos by 2,5-dimethylbenzimidazole. As the organisms are not inactivated and the adsorptive capacity of the medium is not diminished, Drs. Igor Tamm and associates of Rockefeller Institute for Medical Research, New York City, believe that the substance has specific and reversible metabolic effects on the host cells rather than on the organism. Neither vitamin B_{12} nor riboflavin, both containing the dimethylbenzenoid moiety, blocks the action.

Yale J. Biol. & Med. 24:559-566, 1952.

Endocrinology

Hyaluronidase Inhibition

Salicylate inhibition of hyaluronidase in vivo is modulated through the anterior pituitary–adrenal cortex system. After hypophysectomy or adrenalectomy, intravenous salicylate does not inhibit intradermal spreading in rats of a mixture of India ink and hyaluronidase. In normal rats, or rats subjected to operative trauma, spreading is greatly impeded by salicylate. This inhibition of hyaluronidase is not a direct action, since salicylate causes no inhibition in vitro. Neither does the inhibition result from an indirect action mediated solely through the pituitary-adrenal system, since ACTH and cortisone do not modify hyaluronidase activity in vitro. According to Mario Pelloja of the University of Siena, Italy, salicylate inhibition of hyaluronidase in vivo requires the anatomic integrity of the anterior lobe of the pituitary and the adrenal cortex and may best be described as a complex chain of events whose first links apparently lie in the pituitary-adrenal system. The action of salicylates may be related to stress reactions such as traumatic shock and surgical trauma, which cause as much as 100% increase in nonspecific hyaluronidase inhibitor in serum and are also regulated through the pituitary. Salicylate action in rheumatic disease, in which depolymerization of hyaluronic acid is a significant factor, may be the result of hyaluronidase inhibition.

Lancet 262:233-236, 1952.

Neurology

Spinal Cord Regeneration

Functional regeneration due to growth of neural elements within the spinal cord has been observed after complete transection of the myelon in rats, cats, and dogs. The conditions of the experiment and physiologic and histologic evidence established that the new elements were not derived from the spinal nerve roots in the animals studied by Dr. L. W. Freeman of Indianapolis. Schwann cells are not necessary for nerve cell regrowth. Cord regeneration may be seen in human patients after trauma if immediate surgery accomplishes real decompression by wide opening of the pia mater and debridement, and careful treatment reverses the catabolic state.

Ann. Surg. 136:193-205, 1952.

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Symptomatic improvement

Disappearance of headache, dizziness, fatigue, palpitation normally occurs as pressure subsides. However, *even where pressure may not be lowered, relief of hypertensive symptoms with Methium is possible.* Marked reduction will not, of course, occur in all cases, may not be advisable for some.

Long term therapy

The objective of Methium therapy is to lower blood pressure gradually with dosage slowly increased over several days or weeks. Once maximum reduction is reached, it can often be maintained indefinitely.

Methium should be prescribed with due regard for the drug's potency, and great care is advised in impaired renal function, coronary artery disease and existing or possible cerebral vascular accidents. Complete information on the use of Methium will be sent promptly on request.

Methium is available in both 125 mg. and 250 mg. tablets in bottles of 100 and 500.

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short REPORTS

Epidemiology

Poliomyelitis from Flies

Flies collected in and around Cairo, Egypt, where poliomyelitis is endemic, harbor the virus. Coxsackie-like organisms were also obtained by Dr. Robert Ward of New York University, New York City, during investigation of the sanitation theory of infection. In countries with primitive sanitation, people may be exposed repeatedly and immunized relatively early. Cases develop chiefly during the warm season, when food is contaminated by flies.

Federation Proc. 11:486, 1952.

Surgery

Gastrectomy Preparation

Preliminary pneumoperitoneum facilitates total gastrectomy without causing dangerous delay. Air introduced into the peritoneal cavity produces a ptosis of the stomach and raises the diaphragm. Twelve days after pneumoperitoneum was used for a 59-year-old man, Drs. Willis M. Weeden and Bernard Maisel of Cornell University and New York City Hospital performed a total gastrectomy. The abdominal incision revealed visceroptosis, stretching of the supporting ligaments and mesenteries, and herniation of a long segment of the esophagus into the peritoneal cavity. The lower end of the esophagus was covered with three additional anatomic structures, that included thinned-out skeletal muscle derived from the diaphragm and a serosa and subserosa from the diaphragmatic peritoneum, thus strengthening the suture line anastomosing the jejunum to the esophagus. The exposure obtained permitted total block resection of the stomach and mesenteries with no more difficulty than a partial gastrectomy would have presented.

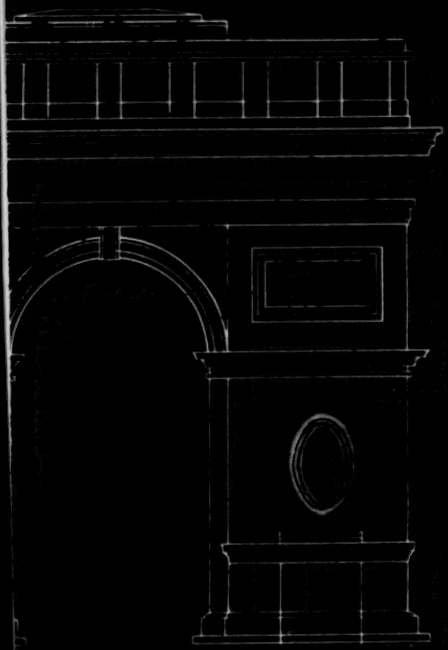
New York State J. Med. 52:1448-1452, 1952.

Experimental Medicine

Alcohol and Sexual Reflexes

Depression of sexual reflexes occurs after the administration of alcohol. Using dogs of different ages, breeds, and temperaments, Dr. W. Horsley Gantt of Johns Hopkins University observed that small amounts increased the latent period of ejaculation and erection, shortening the duration of the latter, while larger quantities abolished both. The marked difference of action in normal and neurotic animals suggests that in regulated dosage the drug may have a therapeutic effect in impotentia sexualis and ejaculatio praecox, probably by diminishing genital sensitivity and increasing the potential period of complete consummation.

Psychosom. Med. 14:174-181, 1952.



Cebētinic

Upjohn

Nutrition

Strained Meat and Fish

Rats grow well when fed skim milk and commercial strained meats and fish as the only source of protein. Skim milk promotes the greatest gains, tuna fish the second greatest. Addition of vitamin B_{12} improves the utilization of beef. Drs. Ihsan El Rawi and E. Geiger of the University of Southern California, Los Angeles, believe that in studying the nutritive value of such protein foods, not only the amino-acid composition and digestibility of the protein, but also the noncaloric effect of the nonprotein constituents of the food must be considered. Some growth factors in addition to vitamin B_{12} may be present in fish.

J. Nutrition 47:119-132, 1952.

Oncology

Mammary Carcinoma

Palliative treatment of breast cancer may be achieved, with only minor side effects in most cases, through use of methylandrostenediol. This androgen induces improvement in responsive patients comparable to that obtained with testosterone, but more slowly. Dr. S. C. Kasdon and associates of Tufts College, Boston, have observed the results of methylandrostenediol therapy in 44 cases of recurrent or inoperable mammary carcinoma. Subjective improvement lasting for as long as six months was seen in 21 cases. In 9 additional patients who had objective as well as subjective improvement, comfortable remission averaged eight months. Hypercalcemia appeared in 3 patients, 2 of whom had osteolytic metastases. Since elevated serum calcium levels are found in untreated patients with osteolytic metastases, this occurrence cannot necessarily be attributed to the methylandrostenediol. Hirsutism, an increased libido, or acne was observed in 7 patients. Doses of testosterone large enough to produce similar beneficial results would undoubtedly cause more frequent and severe secondary sex changes. Aqueous and oil suspensions for intramuscular injection, oral tablets, and pellets for implantation are all suitable means of administering methylandrostenediol and are of similar effectiveness.

J.A.M.A. 148:1212-1216, 1952.

Virology

Poliomyelitis Vaccine

Immunity induced by formalinized poliomyelitis virus lasts a considerable time. Chimpanzees vaccinated at Johns Hopkins University, Baltimore, resisted infection nineteen months later. Dr. Howard A. Howe immunized 9 animals in three months with 10% suspension of rhesus monkey cord containing inactivated Brunhilde virus. After receiving 6 gm. of cord, each subject was given 5 cc. of 20% Brunhilde III B-501. All remained free of paralysis, although 4 animals shed virus in stools for a short period. When a second challenge was given after nineteen months, no paralysis resulted, but 1 monkey became a transient carrier of the virus.

Federation Proc. 11:471-472, 1952.

Metabolism

Value of Aureomycin in Choline Deficiency

Renal lesions and mortality are largely prevented and fatty changes in the liver reduced when rats fed choline-deficient diets are given rather large supplementary amounts (0.5%) of crystalline aureomycin. The destruction of the antibacterial properties by heating the antibiotic in alkaline solution abolishes the protective action. Other antibiotics and vitamins are apparently much less effective, if at all. Drs. James H. Baxter and Harriet Campbell of the National Institutes of Health, Bethesda, Md., find no evidence that this action of aureomycin results from alteration of any of the dietary factors, with the possible exception of vitamin B_{12} and choline.

Proc. Soc. Exper. Biol. & Med. 80:415-419, 1952.

Epidemiology

Cockroaches and Poliomyelitis

Human poliomyelitis virus sufficient to kill laboratory animals can be acquired and excreted daily by cockroaches. Virus of 4 strains was isolated from insects captured on the premises of paralyzed patients from 2 states. Represented were 3 species commonly associated with man, reports Dr. Jerome T. Syverton and associates of the University of Minnesota, Minneapolis, and the U. S. Public Health Service, Atlanta. These were *Periplaneta americana,* the large winged American type; *Supella supellectilium,* the tropical roach; and *Blattella germanica,* the common small German form or croton bug. Carriers were obtained from good and poor sanitary environments. As far as known, a cockroach has not been implicated previously as a natural vector of a virus.

Federation Proc. 11:483, 1952.

Research

Electron-Microscopic Laboratory

The American College of Cardiology announces plans to establish an electron-microscopic research laboratory devoted entirely to cardiology. Bruno Kisch, M.D., New York City, president of the organization, has been appointed director of the laboratory.

Oncology

Anticancer Agent

Increased capillary fragility is the prime factor in the tumor-breaking property of bacterial polysaccharide. The protective influence of flavonoid compound on capillaries was demonstrated by Dr. Boris Sokoloff and associates of Florida Southern College, Lakeland. When rats were given P-25, Shear bacterial polysaccharide, and flavonoid product, 66% survived, but all not receiving the flavonoid died in a few hours. In cancerous animals with vitamin C deficiency, P-25 raised mortality from 15 to 25%, but areas of tumor destruction were 5.3 times larger than in animals on a regular diet.

Federation Proc. 11:427, 1952.

In bacterial diarrheas:

- ✓ combats infection
- ✓ adsorbs bacteria, toxins, and irritants
- ✓ soothes and protects mucosa
- ✓ checks dehydration
- ✓ promotes development of formed, comfortably passed stools

Streptomagma provides
the essentials for securing
prompt and complete remission
. . . because Streptomagma contains:

1. Dihydrostreptomycin . . . "much more effective against the coliform fecal flora than the sulfonamides . . . not readily absorbable . . . non-irritating to the mucosa"[1]

2. Pectin . . . "various pectins . . . become bactericidal agents in the gastrointestinal tract when given together with streptomycin"[2]

3. Kaolin . . . for "tremendous surface and high adsorptive power"[3]

4. Alumina gel . . . itself a potent adsorbent, acts as a suspending agent for the kaolin and enhances its action, soothes and protects the irritated intestinal mucosa.

STREPTOMAGMA*

DIHYDROSTREPTOMYCIN SULFATE AND PECTIN WITH KAOLIN IN ALUMINA GEL

Supplied: Bottles of 3 fl. oz.

1. Pulaski, E. J. and Connell, J. F., Jr.: Bull. U.S. Army M. Dept. *9*:265.
2. Wooldridge, W. E. and Mast, G. W.: Am. J. Surg. *78*:881.
3. Swalm, W. A. M. Rec. *140*:26.

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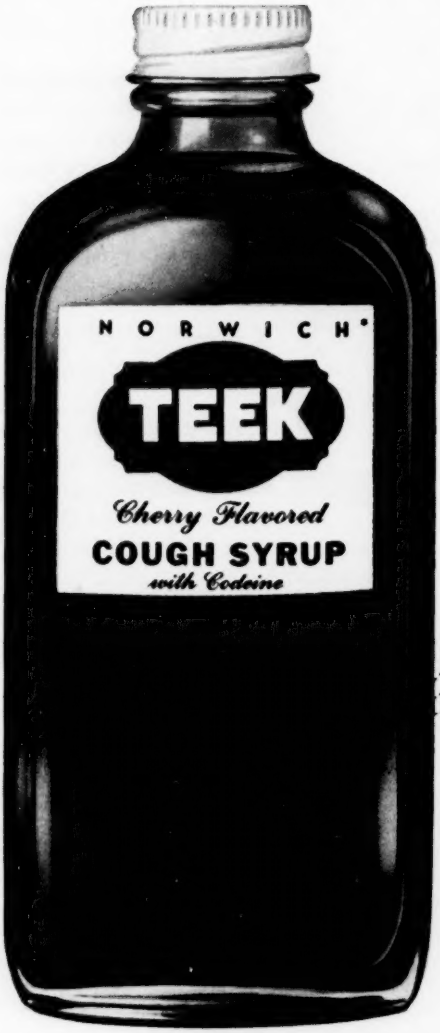
TEEK for coughs



Contains codeine ⅔ grain per oz.; extractives of squill, ipecac and Sanguinaria; chloroform and alcohol.

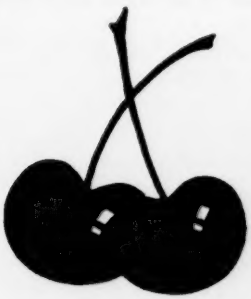
Exempt narcotic—prescription not required.

provides:

prompt cough relief

effective expectorant action

soothing, palatable vehicle



Delicious Cherry Flavor

EATON LABORATORIES Inc.
NORWICH, NEW YORK

Pediatrics

Immunity of Newborn

Placental transfer of passive immunity is illustrated by the response of newborn infants to vaccinia. The hemagglutination-inhibition titers of 182 mothers and their babies were compared by Dr. C. Henry Kempe and associates of the University of California and George Williams Hooper Foundation, San Francisco. Only 5 infants had lower values than their mothers, and 71 had higher levels. Women vaccinated within the preceding five years had relatively high titers, as did their children. In 2 cases, babies not affected by vaccination soon after birth had skin reactions on inoculation at six months, as if from previous antigenic experience.

Federation Proc. 11:473, 1952.

Hematology

Hemorrhagic Disease

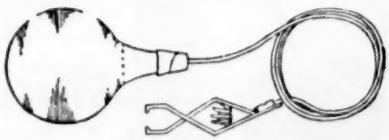
An apparently new type of severe hemorrhagic disease, that resembles hemophilia, has lately been reported. The coagulation defect in hemophilia is believed to result from absence of a single inactive plasma factor essential to liberation of thromboplastin. Dr. Paul M. Aggeler and associates of the University of California, San Francisco, describe a 16-year-old boy with severe hemorrhagic disease in which the bleeding is completely controlled by transfusions of whole blood or plasma. The patient's coagulation time is not significantly shortened by potent preparations of antihemophilic globulin. The boy's blood contains usual amounts of all previously described coagulation fractions. Partial purification and concentration of the patient's missing factor, plasma thromboplastin component, has been effected.

Proc. Soc. Exper. Biol. & Med. 79:692-694, 1952.

Cardiology

Steel ECG Electrode

A self-retaining precordial electrocardiographic electrode neither oxidizes nor corrodes, causes the smallest base-line drift, and permits registration of leads from the back with the patient recumbent. With ordinary scissors, Dr. Eugene Lepeschkin of the University of Vermont, Burlington, cuts a disk of



about 3 cm. in diameter from a sheet of stainless steel, 2/1,000 in. thick. A 2-ft. length of Belden indoor aerial wire, fitted with a small battery clamp at the distal end for attachment to a standard cable, is secured to a tapering extension from the periphery with black plastic insulating adhesive tape. This method eliminates contact of the junction with the electrode paste and thus prevents development of electromotive forces affecting the base line. The device may be used through the front opening of the patient's shirt or blouse.

New England J. Med. 247:131, 1952.

**"WE HOPE TO GROW OLD,
YET WE DREAD OLD AGE"**

Jean de La Bruyère

The fulfillment of a long life is an innate desire of all, yet the fear of aging is ever present. The infirmities that frequently accompany old age may be due to improper adjustment of the body economy to the decline in sex hormone activity, nutritional inadequacy, and emotional instability. "Mediatric" Capsules—combining steroids, nutritional supplements, and a mild antidepressant—are specially formulated to forestall the onset of premature atrophic and degenerative changes.

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"MEDIATRIC" CAPSULES

steroid-nutritional compound

Each Mediatric Capsule contains:

Conjugated Estrogens	0.3 mg.
Methyltestosterone	5 mg.
Vitamin [illegible]	[illegible] mg.
Thiamine HCl, B1	[illegible] mg.
Vitamin B12 U.S.P.	[illegible] mcg.
Folic acid	[illegible] mg.
Ferrous Sulfate exsic.	[illegible] mg.
Brewers yeast (specially prepared)	[illegible] mg.
d-Desoxyephedrine HCl	[illegible] mg.

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Pioneering a NEW Therapeutic Agent

RONCOVITE

THE ORIGINAL THERAPEUTIC COBALT FORMULATION

Creates Hemoglobin Filled Erythrocytes

Extensive clinical investigation indicates that therapeutic cobalt is a direct bone marrow stimulant which causes increased cell proliferation, maturation and release of erythrocytes to the blood stream. Hemoglobin synthesis in the marrow cells is then a simple function of the available iron. No complex theories of "catalytic" action or "utilization of iron" are involved.

Exerts a Powerful, Readily Demonstrable Action

The strength of the "cobalt effect" provided in Roncovite is evidenced by a prompt reticulocytosis and by the fact that bone marrow response can be demonstrated in many cases, even when toxic depression or hypoplasia of the bone marrow exists. Furthermore, patient response to iron therapy can be greatly increased by the addition of cobalt.

Causes Rapid Erythrogenesis

The rapidity of results from Roncovite therapy depends, in part, upon the condition of the bone marrow. In simple "iron deficiency" anemia the blood picture may show evidence of cobalt stimulation within three days; where toxic depression or hypoplasia exists, the reticulocyte response is promptly apparent, but significant erythrocyte increases may require three or four weeks of therapy.

Prevents Iron Deficiency During Cobalt Therapy

The additional hemoglobin needed to supply the increased red cell production caused by cobalt results in an immediate mobilization of iron and tends to deplete the iron reserve of the body. Roncovite supplies iron to maintain an adequate reserve.

RONCOVITE

TRADEMARK

Therapeutic Cobalt

In anemia Roncovite offers, for the first time, the specific bone marrow stimulating action of full therapeutic cobalt dosage.

The result of Roncovite therapy in "secondary anemia" is, therefore, a prompt increase in erythrocytes with subsequent corresponding increases in hemoglobin.

Dosage

The degree of hemopoietic stimulation with Roncovite varies with dosage. In the majority of adults one tablet 4 times a day is adequate; or with infants and children 10 minims of Roncovite drops may be given once daily. However, doses as large as 8 tablets—or 30 minims—per day rarely cause anorexia or gastrointestinal side-effects.

RONCOVITE is offered in two convenient dosage forms:

RONCOVITE TABLETS . . . Each red enteric coated tablet contains:

Cobalt chloride . . . . . 15 mg.
Ferrous sulfate . . . . . 0.2 Gm.
Bottles of 100

RONCOVITE DROPS . . . Each 0.6 cc. (10 minims) contains:

Cobalt chloride . . . . . 40 mg.
Ferrous sulfate . . . . . 75 mg.
Bottles of 15 cc.

Descriptive literature, bibliography and clinical supply available on request.

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Psychiatry

Relaxant for Electroshock

Nearly complete muscular relaxation, and thereby elimination of fracture and circulatory strain, is obtainable in electroshock therapy through use of succinyl-cholineiodide. Succinyl-choline is a strong inhibitor of neuromuscular transmission, producing relaxation within sixty seconds after intravenous administration. Rapid hydrolysis by body esterases obviates the necessity of an antidote and probably accounts for the low toxicity of the material. For routine electroshock therapy, premedication with methylscopolamine nitrate is desirable to counteract the parasympathetic stimulation often caused by shock. Vagal stimulation gives rise to hypersecretion in the respiratory passages, which aggravates the reduced ventilation brought about by treatment. A freshly prepared mixture of 0.2 to 0.4 mg. of succinylcholine per kilogram of body weight and 0.15 gm. of pentothal or similar barbiturate is injected intravenously in sixty seconds with the patient inhaling oxygen through a mask. Twenty seconds later, electroshock is administered. When convulsions cease, oxygen is actively insufflated until spontaneous respiration begins. Drs. G. Holmberg and S. Thesleff have successfully used this procedure for 186 patients of all ages at the Karolinska Institutet, Stockholm. Convulsive strength is definitely reduced in most cases. Respiratory arrest seldom persists for over three minutes. One minute after conclusion of respiratory arrest, muscular force and respiration are restored. Unpleasant choking sensations occurring during injection of succinyl-choline may be eliminated in subsequent therapy with increase of barbiturate. Hiccups and slight muscular tenderness in the jaws or calves are the only after effects attributable to succinyl-choline.

Am. J. Psychiat. 108:842-846, 1952.

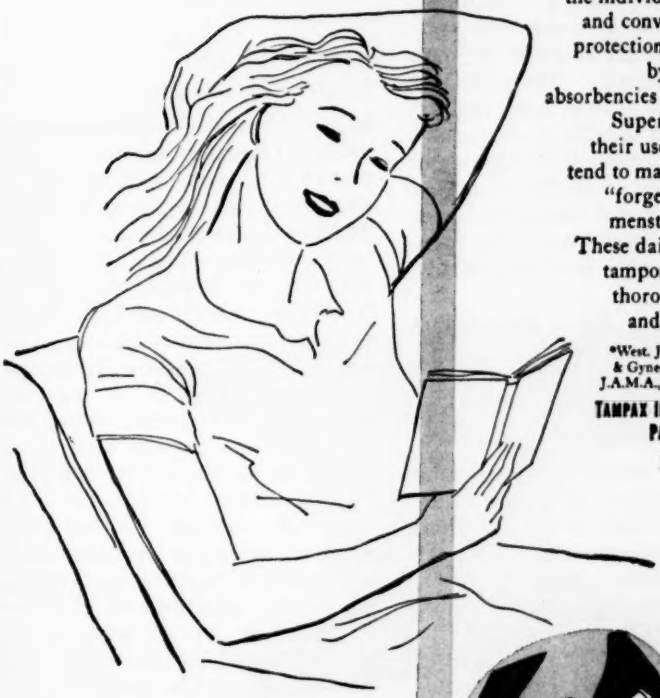
Nutrition

Penicillin for Anemia

The megaloblastic anemias of African natives are corrected by penicillin, which probably encourages growth of the intestinal bacteria that increase blood-forming elements. Crystalline penicillin G in oral doses of 200,000 units daily and intramuscular injections of 400,000 units per day are recommended by Dr. Henry Foy and associates of the Wellcome Trust Research Laboratories and the Colonial Medical Service, Kenya. Diseases resulting from lack of vitamin B components are common in Africa, India, the Balkans, and elsewhere. A low protein diet, high in bulky carbohydrates, may indirectly cause anemia by producing microflora unfavorable to synthesis or utilization of hemopoietic vitamins. Limited doses of penicillin probably remove unfavorable types, but too large doses may eliminate both synthesizing and competing bacteria. The intestinal environment should be reconsidered in the etiology of the anemias and other deficiency states associated with dietary imbalance.

Lancet 262:1221-1225, 1952.

so comfortable



Both *physically* and *psychologically,* TAMPAX tampons are amazingly comfortable intravaginal menstrual guards. They cannot induce odor, perineal irritation or infection via rectum. And, with the individualization and convenience of protection provided by the three absorbencies (Regular, Super, Junior), their use is said to tend to make women "forget they are menstruating."* These dainty cotton tampons are also thoroughly safe and adequate.

*West. J. Surg., Obstet. & Gynec., 51:50, 1943; J.A.M.A., 128:490, 1945.

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TAMPAX

the internal menstrual guard of choice

Your request will bring professional samples promptly.

Antihistamines

Antibiotic Properties of Benadryl

Growth of the green flagellate, *Chlorogonium tetragamum*, is inhibited by Benadryl. Histamine does not reverse this inhibition, find Drs. Theodore L. Jahn and William Danforth of the University of California, Los Angeles. Even stronger inhibition is produced by 4,4-diphenyl-N,N-dimethylbutyl-1-amine hydrochloride, which closely resembles Benadryl in chemical structure but has only one-fifth the antihistaminic activity. These findings indicate that growth inhibition activity against flagellates is unrelated to the antihistaminic properties of Benadryl and separate from the bacteriostatic and fungistatic properties which are reversed by histamine or thiamine-nicotinamide mixtures.

Proc. Soc. Exper. Biol. & Med. 80:13-15, 1952.

Oncology

Carcinomatosis and Ascites

Hemisulfur mustard is only one-thirteenth as toxic as nitrogen mustard and affords some temporary benefit to patients with carcinomatosis and ascites. Hemisulfur mustard is 2-chloro-2'-hydroxydiethylsulfide. Dr. Arnold M. Seligman and associates of Harvard University and Beth Israel Hospital, Boston, have administered the compound intravenously to 31 patients with malignant disease. Improvement lasting for several weeks to ten months was attained by 8 patients with ascites from peritoneal carcinomatosis and 2 with metastatic cancer of the prostate. Palliation consisted in decreased pain, lessened formation of ascites, and improved appetite and strength. Nausea, vomiting, malaise, and weakness were observed as toxic effects of the drug. Inflammation and thrombosis were seen in the vein used for administration. Blood cell counts are not affected by hemisulfur.

Cancer Research 12:295, 1952.

Pulmonary Disease

Nontoxic Detergent Aerosol

Liquefaction of viscid bronchopulmonary secretions may be accomplished by inhalation of an aerosol mist of Triton A-20, a detergent designated chemically as an alkylaryl polyether alcohol. At Spring Hill College, Mobile, Drs. Joseph B. Miller and Edward H. Boyer demonstrated the complete nontoxicity of the substance in concentrations up to 50% in man and animals. Hyperlipemia lasting five to fifteen days appears after intravenous injections of 4 cc. of a 50% solution twice weekly for nine weeks in animals, but no intravascular hemolysis or tissue damage occurs. A 0.1% preparation has been administered for two hours daily for as long as six months to children and adults with tuberculosis; 0.5% concentrations have been used intermittently or continuously for similar periods without harmful effects in cases of severe croup, asthma, and neonatal atelectasis.

J. Pediat. 40:767-771, 1952.

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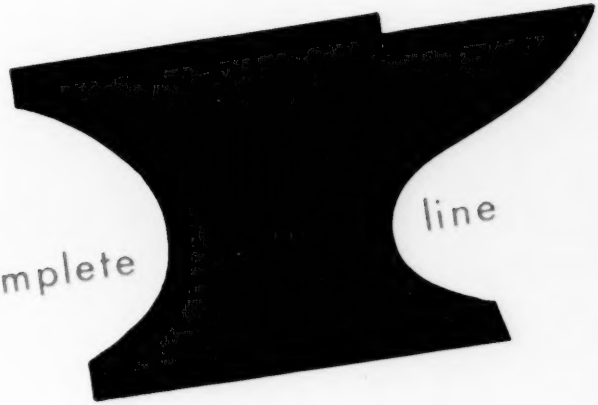

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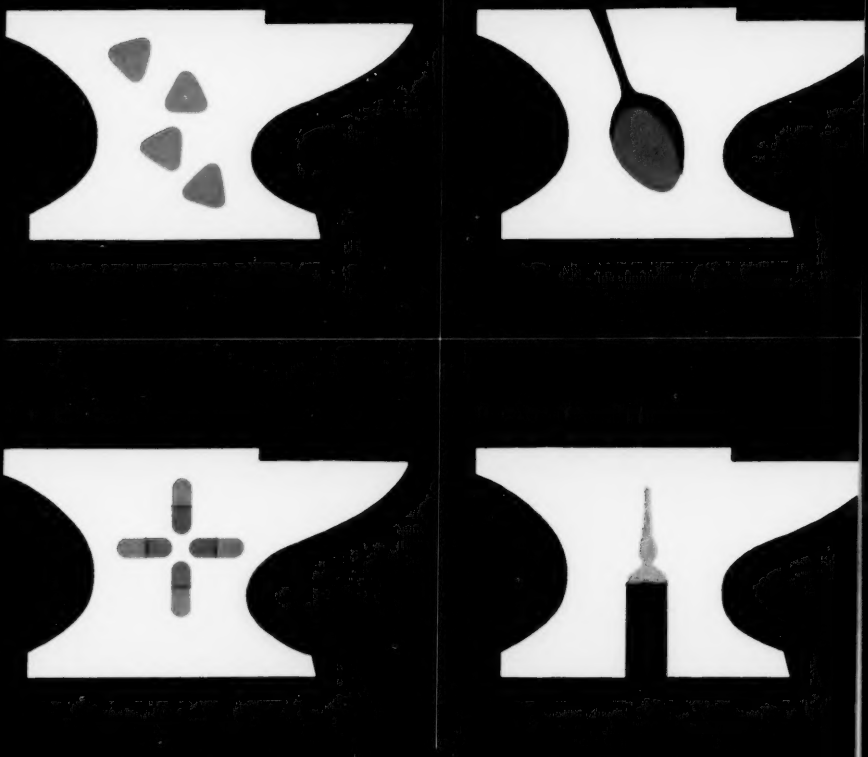

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FEOSOL* HEMATONIC

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'Feosol Hematonic' is indicated for the treatment of microcytic and most macrocytic anemias.

Prophylactically, 'Feosol Hematonic' is of real value in pregnancy, lactation, convalescence and geriatrics.

It is also indicated as supportive therapy, both pre- and post-operatively; as a nutritive supplement; and as an adjunct to parenteral liver or B_{12} therapy in Addisonian pernicious anemia.

The recommended daily dosage—1 tablet, 3 times daily—delivers:

Vitamin B_{12}† (Activity Equiv.)	36 mcg.
Gastric substance‡	300 mg.
Folic acid	3 mg.
Ascorbic acid (Vitamin C)	150 mg.
Ferrous sulfate, exsiccated	600 mg.

†Derived from Streptomyces Fermentation. ‡Contains intrinsic factor.

'Feosol Hematonic' is available in bottles of 100 tablets.

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off.

Pediatrics

Banthine in Infantile Colic

When administered for infantile vomiting and colic, Banthine bromide, an anticholinergic quaternary amine, produced good results in 34 of 50 infants ranging in age from 1 to 32 weeks and poor results in 10. The drug was given in 5-mg. doses four times a day. Drs. Harold Levy and Ben M. Zweifler of Beth-El Hospital, Brooklyn, observed none of the side effects reported in adults.

J. Pediat. 40:570-575, 1952.

Vasopressor

Treatment of Shock

Nor-epinephrine is an effective vasopressor in severe shock not amenable to other measures. Dr. James A. Skelton and associates of Baylor University and Jefferson Davis Hospital, Houston, gave 0.6 μg. per kilogram subcutaneously to 15 healthy persons and continuous intravenous infusions to 8 others and to 17 patients in shock because of myocardial infarction, overwhelming infection, heart failure, postoperative reactions, or peripheral vascular collapse caused by intravenous aminophylline. All the patients had systolic blood pressures below 60 mm. for thirty minutes or more. Vasopressor effects without subsequent vasodilatation lasted about thirty to forty-five minutes after the subcutaneous injections. Vital capacity, circulation time, respiratory rate, blood sugar, and hematocrit were not altered significantly. After continuous infusion, the blood pressures of the healthy persons increased about 30%, whereas the renal plasma flows decreased 40%. Glomerular filtration rates decreased 8%. Subjective symptoms were slight or absent. Blood pressures of the patients in shock returned to normal in 16 instances; 9 persons recovered completely and were discharged from the hospital.

Federation Proc. 11:391, 1952.

Nutrition

Breakfast Habits

Going without breakfast lowers efficiency of elderly men. At the University of Iowa, Iowa City, Dr. W. W. Tuttle and associates found that omission of breakfast in 8 men past 60 years of age affected reaction time, neuromuscular tremors, strength, and amount of oxygen required for work. If some food was taken, however, the size and content of the meal had no effect on physiologic response.

Federation Proc. 11:164, 1952.

Obstetrics

Onset of Labor

More women begin labor between 1 and 2 A.M. than in any other hour, and the fewest start at noon, the ratio of the 2 groups being 5:2. Onset is determined either by commencement of pains or by passage of amniotic fluid. On the average, periods of labor are shorter if begun at night than during the day. Dr. J. Málek of Charles University at Prague compiled statistics from some 69,875 deliveries in maternity wards.

Gynaecologia 133:365-372, 1952.

Nutrition

Diet and Obesity

The percentages of dietary protein, fat, and carbohydrate eaten by fat women and those of normal weight are practically the same. In particular, obese people do not consume a greater proportion of carbohydrates, assert Drs. Rachael Beaudoin and Jean Mayer of Harvard University, Boston. Both groups take 35 to 40% of calories as fat rather than 25%, the amount generally regarded as customary for adults with moderate caloric intake.

Federation Proc. 11:436-437, 1952.

Physical Medicine

Treatment of Prolapsed Disk

Ultrasonic-wave therapy should be tried before treatment by rest or operation in all cases of prolapsed disk. The diagnosis of prolapse is justifiable only when roentgenograms made after Lipiodol injection show both degeneration of the intervertebral disk and disappearance of lumbar or cervical lordosis, believes Dr. Johanna M. van Went of Amsterdam, Holland, who uses a French apparatus, Hyperecho, for ultrasonic-wave therapy. Reactions to treatment vary; improvement is immediate in some cases, initial aggravation occurs in others. In 34 patients treated, all but 1, who discontinued therapy, were relieved of pain and other symptoms and signs and were able to resume work, often heavy labor, after 10 to 30 applications. Few of the patients treated had a history of trauma.

Brit. J. Phys. Med. 15:120-121, 1952.

Cardiology

Induced Pulmonary Stenosis

Eisenmenger's complex, large ventricular septal defects, and true truncus arteriosus comprise a group of cardiac malformations functioning physiologically as a single ventricle although anatomically the septum may not be completely lacking. To reduce the pulmonary hypertension and excessive blood flow in a 4-month infant with constant heart failure, Drs. William H. Muller, Jr., and J. Francis Dammann, Jr., of the University of California, Los Angeles, and St. John's Hospital, Santa Monica, produced pulmonic stenosis by removing a segment of the wall of the pulmonary artery. A band of polyethylene film sutured over umbilical tape was placed around the narrowed area to increase the constriction by continuing sclerosing action.

Surg., Gynec. & Obst. 95:213-219, 1952.

Hematology

Pernicious Anemia Therapy

Oral administration of vitamin B_{12} and folic acid alternately at twelve-hour intervals produces an added effect parenterally that potentiates erythropoiesis in pernicious anemia. Drs. Edward H. Reisner, Jr., and Leo Weiner of New York University, New York City, believe from observations on 4 patients that the enhanced response from suboptimal doses of the two substances thus given results from true synergy and not from increased absorption of the vitamin.

New England J. Med. 247:15-17, 1952.


NEO-CULTOL
L. Acidophilus in chocolate-flavored mineral oil jelly
friendly in taste – tastes like chocolate pudding – readily taken by children . . . or adults.
friendly to normal aciduric flora – the type essential to normal peristalsis. Suppresses putrefactive bacteria to obviate distressing flatulence.
friendly in effectiveness – so gentle, no rush, no griping, strain or leakage. Lubricates, softens intestinal contents. Evacuations are moist, comfortably passed.
NEO-CULTOL
Wide-mouth jars of 6 oz.
Send for tasting and testing samples.
friendly to the constipated colon
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Immunology

Antibiotic Action of Semen

Human semen and prostatic fluid appear to contain two antibacterial substances. One factor, heat stabile, is effective against *Staphylococcus aureus, Escherichia coli, Neisseria gonorrhoeae, N. meningitidis,* and *Bacillus cereus.* The other factor, relatively heat labile, is lysozyme or a lysozyme-like material primarily antagonistic to *Micrococcus lysodeikticus.* Paul W. Taylor and Dr. Herbert R. Morgan of the University of Rochester, N. Y., report that the substances have no antibacterial activity against *Streptococcus hemolyticus.* Probably important in genitourinary infections, the factors may protect the spermatozoa against vaginal bacteria.

Surg., Gynec. & Obst. 94:662-668, 1952.

Endocrinology

Eosinopenic Response to Intravenous ACTH

Maximum eosinopenic response to ACTH is produced when 0.8 to 2 mg. of the drug is given by continuous intravenous drip over an eight-hour period at the rate of 0.1 to 0.25 mg. per hour. Quantities 10 times as large react similarly; smaller amounts are ineffective. Dr. R. D. T. Cape and associates of Vancouver and Shaughnessy hospitals and the University of British Columbia, Vancouver, suggest administering 5 mg. of ACTH by this method and making two eosinophil counts between the sixth and eighth hours as a more reliable procedure than the intramuscular Thorn test.

Lancet 263:111-112, 1952.

Our Office Nurse

Think of a gag that fits the illustration. For every issue a new gag is published and the author is sent $5. The Oct. 15 winner is

Wilfred Dorfman, M.D.
Brooklyn

Mail your caption to
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No. 3

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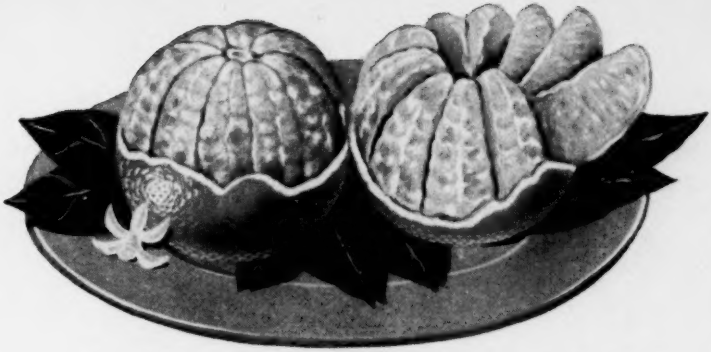
84 South 10th St.
Minneapolis 3, Minn.

"You're not to be a censor, Miss Jones. I did note a thrill when I examined her heart."



An Orange a Day for Better Nutrient Absorption

THE SIGNIFICANCE OF THE PROTOPECTINS

Human nutrition today means more than the mere ingestion of the chemical components of foodstuffs. While these nutrients—vitamins, minerals, proteins, fats, and carbohydrates—are needed to carry on metabolic life, food must also provide other substances required for normal functioning of many systems within the organism, particularly the gastrointestinal tract. Conversely, only in the optimally functioning digestive tract will nutrients be absorbed to the greatest possible extent.

The Protopectins

Among such non-nutritive substances which aid in promoting better intestinal functioning are the protopectins, the subject of present wide interest.

Protopectins are the native form in which pectin occurs in certain fruits. California oranges supply generous amounts of these complex carbohydrates, which are contained in the fibrovascular bundles, the segmental walls, and the juice sacs; the juice contains comparatively little.

When the properly peeled fruit is eaten whole, the ingested protopectins—after conversion to pectin and subjection to enzymatic and bacterial action throughout the tract—yield substances largely responsible for their advantageous influence on the digestive processes, intestinal function and nutrient absorption.

Improved Nutrient Absorption

By lowering intestinal pH and lessening intestinal fermentation and putrefaction, the protopectins create an environment conducive to more complete absorption of important nutrients supplied by the daily diet. Thus all the foods eaten yield a fuller measure of their contained nutrients, ***without leading to weight gain,*** since their caloric contribution remains the same. The influence of the protopectins, of value at every age, is especially beneficial in the later years of life.

Other Benefits

Because of their demulcent influence the protopectins counteract the effects of intestinal irritants, thus aiding in the prevention of diarrhea. Through their water-binding power they lead to the formation of desirable gelatinous bulk which tends to prevent constipation. By lowering the intestinal pH, the protopectins tend to inhibit the growth of putrefactive and other undesirable bacteria in the intestine.

These beneficial effects are over and above, and entirely separate from, the multiple vitamin values of oranges. Oranges remain the best practical source of vitamin C. Sunkist Oranges are the finest of the crop of California, where sunshine, mineral-rich soil, and cool nights combine to produce oranges of the highest quality.

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"an indispensable agency
in control of significant features of many disease processes."[1]

As "the renaissance in physical therapy promises that this oldest of healing arts will again come into its own,"[2] physicians, nurses and physical therapists have become increasingly aware that the lubricant chosen may be a factor in the success of massage therapy.

1 and 2 — "Massage — Physiologic Basis," Arch Phys Medicine, March 1945. Presented as part of Instruction Course, Twenty-third Annual Session, Amer. Congress of Phys Medicine, Cleveland, 1944

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Obstetric Practice in Event of All Out Defensive Warfare

WALTER A. RUCH, M.D.
University of Tennessee, Memphis

IN view of the ever-present threat of atomic war, county and state medical societies should lose no time in extending the preparation already advised by the Civil Defense Administration to anticipate the needs of the most extreme emergency. Obstetricians must recognize the fact that under atomic attack the incidence of abortion and premature labor is greatly increased.

All the pregnant women in close proximity to the bomb explosions in Hiroshima and Nagasaki were instantly killed and about 27% of the surviving pregnant women within two miles of ground zero aborted or had premature deliveries at the time of the disaster. Reports from Germany indicate an increase in the incidence of abortions and premature deliveries in expectant mothers residing in the outskirts of an area under bombing attack.

In England during World War II, arrangements were made for parties of pregnant women, accompanied by trained midwives, to be sent to areas where special preparations had been made for care. Maternity homes were established in large country houses or other suitable premises. Only complicated cases were admitted to hospitals.

Obstetrical practice under conditions imposed by all out defensive warfare. South. M. J. 45:190-194, 1952.


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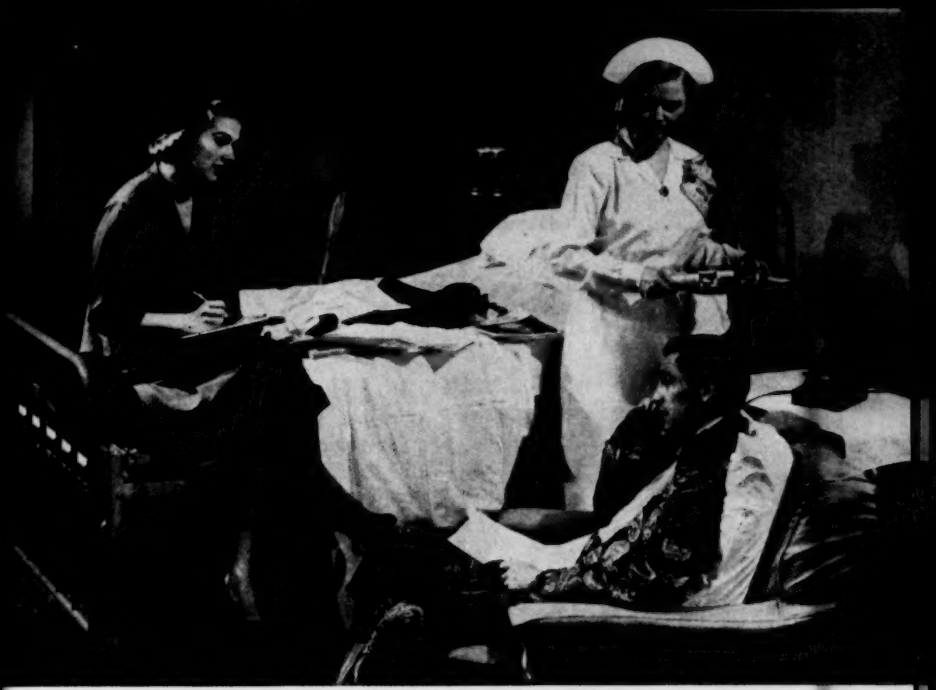
Later during the war, maternity homes were set up to function as appointed hospitals, and a regular hospital staff was assigned to each home.

In the United States, the official state health agencies, in cooperation with the Civil Defense Welfare Service, should assume major responsibility for the administration and operation of emergency services for expectant mothers and infants through local and regional health units. If America is to profit by England's experience, plans should be made now for the locating of rural temporary hospitals, billets, or homes for normal deliveries and some sort of financing arranged before the actual time of disaster. By studying and trying to improve on the plan used in England during World War II, an organization can be perfected which should function smoothly if emergency arises.

Walter A. Ruch, M.D., suggests the following procedures:

Assuming that in case of bombing attacks most obstetricians will be called upon for considerable emergency work, a sufficient number of medical students, practical

"Poor circulation? Nonsense. I've been engaged to four different men in the last month."



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1. *Seley, S. A.: Am. J. Dig. Dis. 13:238 (July) 1946.* 2. *Rossien, A. X.: Rev. of Gastroenterol. 16:34-52 (Jan.) 1949.* 3. *Rossien, A. X. and Victor, A. W.: Am. J. Dig. Dis. 14:226-229 (July) 1947.* 4. *Batterman, R. C. and Ehrenfeld, I.: Gastroenterol. 9:141 (August) 1947.*

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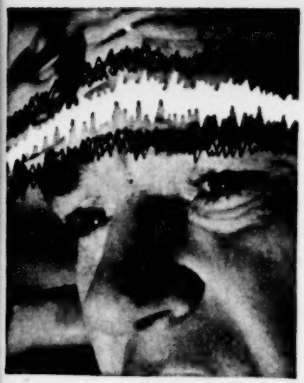
nurses, and midwives should be trained to take care of normal deliveries.

Teaching institutions might well revert to teaching home deliveries and giving refresher courses in such practices. Portable incubators and obstetric supplies that are difficult to acquire should be stockpiled.

All expectant mothers should have blood typing early in prenatal care and wear identification tags of some material not destroyable by radiation, giving name, address, due date, and blood and Rh type. Pregnant women should also have the names of at least 2 friends or relatives of similar blood type.

Mothers should be taught the importance of prenatal breast care; breast feeding should be encouraged because artificial feeding equipment might be destroyed during attack. Likewise, expectant mothers should prepare small, durable kits containing drugs and supplies needed for themselves and babies.

"But what future can there be as my receptionist?"



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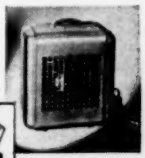

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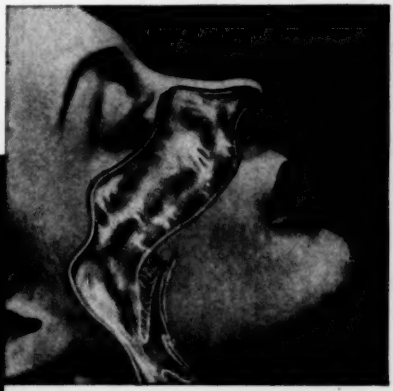

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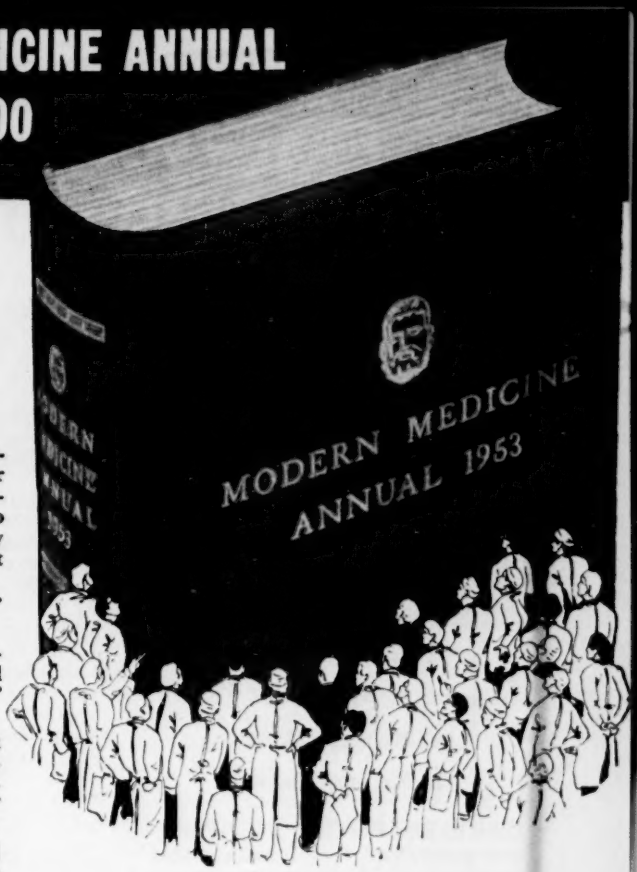

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1. Report to Council on Pharmacy & Chemistry, A.M.A.: J.A.M.A. 148:50 (Jan. 5) 1952. 2. Dickinson, R. L.: Techniques of Conception Control, ed. 3, Baltimore, Williams & Wilkins Company, 1950, p. 21.

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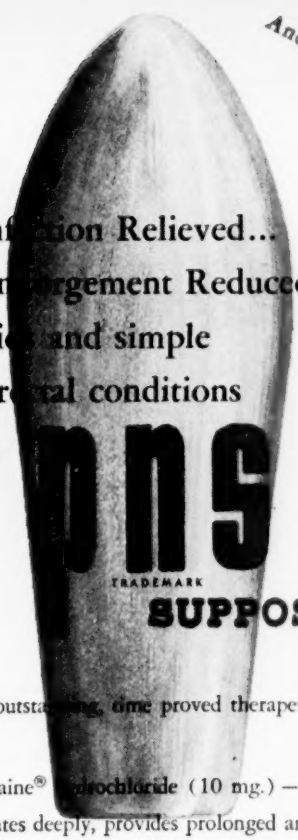

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P Pontocaine® ydrochloride (10 mg.) — topical anesthetic — penetrates deeply, provides prolonged analgesic action without irritation.

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S Sulfamylon® hydrochloride (0.2 Gm.) — active against a wide range of bacteria; relatively nontoxic to cellular tissue.

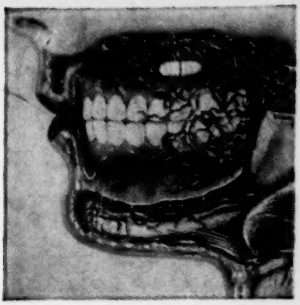
Bismuth subgallate and balsam of Peru are incorporated for their drying antiseptic and soothing emollient effects.

℞ **Boxes of 12 suppositories**

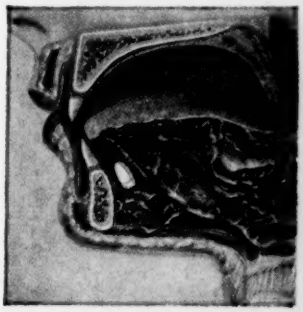
Winthrop-Stearns Inc.
New York 18, N. Y. Windsor, Ont.

ntocaine, Neo-Synephrine and Sulfamylon, trademarks reg. U. S. & Canada.
and of tetracaine, phenylephrine and mafenide (4-aminomethylbenzenesulfonamide), respectively.

Whenever
androgen
therapy
is required . . .



METANDREN® LINGUETS®

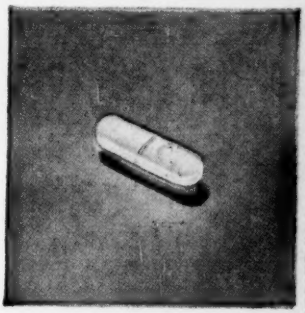


*"When administered as buccal or sublingual tablets, methyltestosterone was approximately twice as potent per milligram as unesterified testosterone . . ."**

Liver is by-passed as with injection . . .

Mentandren Linguets are therapeutically potent because they make possible the absorption of methyltestosterone directly into the systemic circulation. Placed in the buccal pocket or under the tongue, they are absorbed efficiently. Hence the body tissues become permeated with the hormone before hepatic degradation can take place. Metandren Linguets are supplied in strengths of 5 mg. (white) and 10 mg. (yellow) both scored.

Metandren (brand of methyltestosterone)
Linguets (brand of tablets for mucosal absorption)



*ESCAMILLA, R. F., AND GORDAN, G. S. J. J. CLIN. ENDOCRINOL. 10:248, 1950.

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